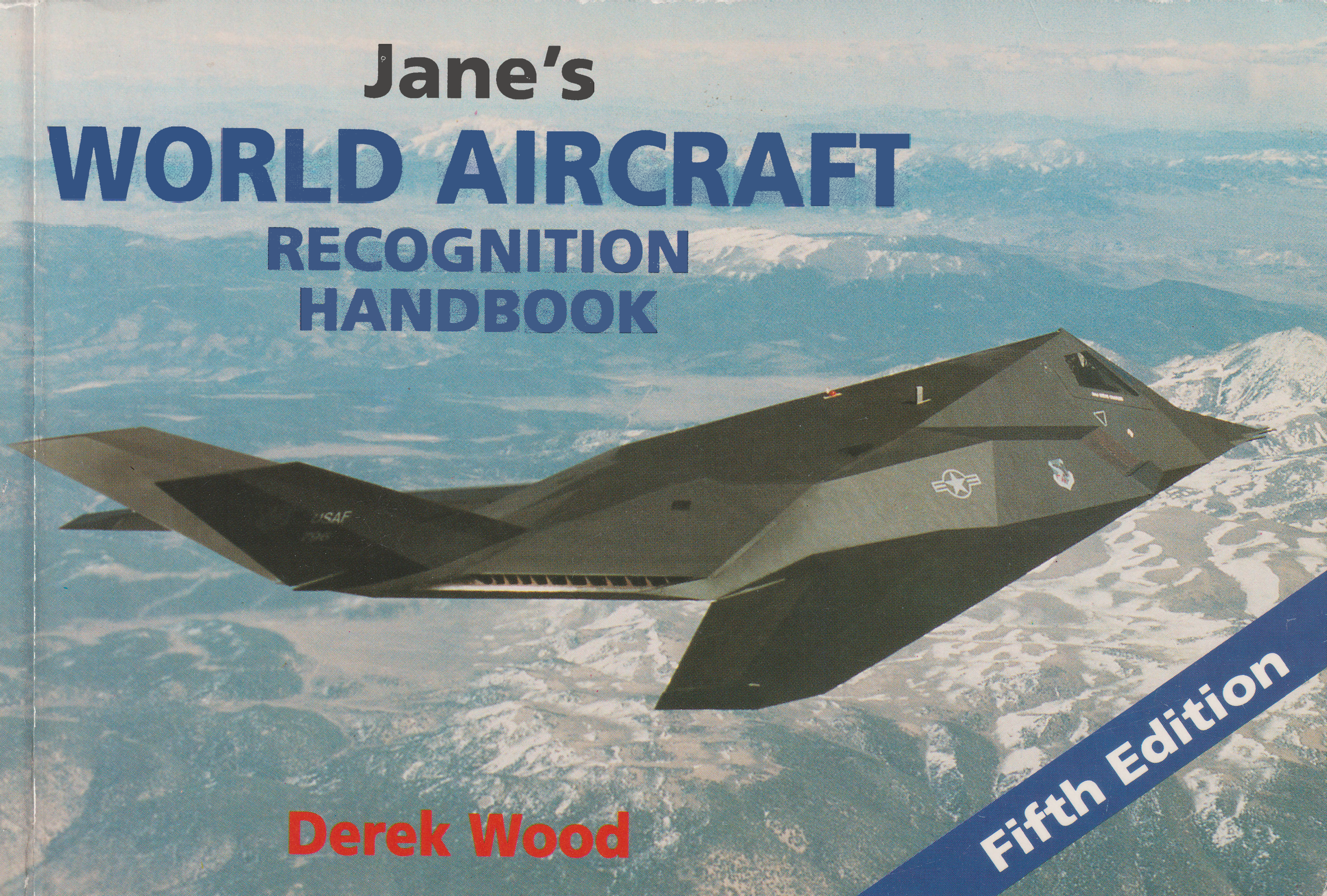


Jane's

WORLD AIRCRAFT RECOGNITION HANDBOOK

Derek Wood

Fifth Edition

Jane's
WORLD AIRCRAFT
RECOGNITION
HANDBOOK

Derek Wood

Copyright © Derek Wood 1979, 1982, 1985, 1989, 1992

First published in the United Kingdom in 1979
This edition published in 1992 by
Jane's Information Group Ltd,
163 Brighton Road,
Coulsdon, Surrey CR5 2NH,
United Kingdom

Second Printing 1993

Distributed in the USA and its
dependencies by
Jane's Information Group Inc,
1340 Braddock Place, Suite 300,
PO Box 1436, Alexandria,
Virginia 22314-1651,
USA

Jane's is a registered trade mark

ISBN 0 7106 1042 4

All rights are reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted in any form by any means electrical, mechanical or photocopied, recorded or otherwise without prior permission of the publisher.

Printed in the United Kingdom by
Butler and Tanner Limited, Frome, Somerset

Contents

Introduction 6
The Basics of Recognition 10
Teaching Recognition 16
Guided Missiles 24
Aircraft and Guided Weapon Designations 36
Combat Aircraft of the Nations 65
Civil Aircraft Registrations 82
Jet, swept wing, fuselage engine(s) 84
Jet, swept wing, flank/root engine(s) 124
Jet, swept wing, underwing engines 128
Jet, swept wing, rear engines 168
Jet, straight wing, rear engines 201
Jet, delta wing 212
Jet, variable geometry 231
Stealth 243
Jet, straight wing, fuselage/wing engine(s) 246
Twin propellers, low/mid wing 276
Twin propellers, high/shoulder wing 333
Four propellers 373
Single propeller, low wing, retractable undercarriage 387
Single propeller, low wing, fixed undercarriage 427
Single propeller, high/shoulder wing 475
Amphibians, Biplanes, Twin boom aircraft 505
Helicopter, single rotor, light 533
Helicopter, single rotor, medium/heavy; twin rotors 569
Addenda 602
Very New and Rather Old 604
Glossary 612
Sillograph Proficiency Test 615
Index 618
Test Answers 632

Front Cover: F-117A
Back Cover: Black Hawk, ATR 42

ACKNOWLEDGEMENTS

In the preparation of this edition I have received valuable assistance from several sources, for which I am most grateful – John Blake for preparing a number of new sketch drawings; Dennis Punnett and Mike Keep for supplying the silhouettes; John Taylor, Mark Lambert and Ken Munson for valuable information and pictures; Derrick Ballington for producing the test sillographs, maps and annotated aircraft drawings and for researching many of the new photographs; Ruth Simmance of Jane's Information Group for dealing so ably with all the copy and proofs, and picking up vital points which I had overlooked; my wife Lin for typing the new entries and helping with collation.

FOREWORD TO FIFTH EDITION

Momentous political changes have taken place in the world since the last edition of *Jane's World Aircraft Recognition Handbook*. The break-up of the Soviet Union and the creation of the Commonwealth of Independent States (CIS) has led to a great deal of information becoming available on Russian aircraft. Guesswork has, in most cases, now been replaced by facts. A whole collection of new nations have come into being, of which account has been taken.

Overall reduction in defence spending and rising costs have resulted in fewer new military aircraft appearing and this trend will continue. On the other hand, existing military types are being kept in service longer and they are being updated and modified – often resulting in changes to outlines and loads carried.

Among the types deleted from this edition, through withdrawal from service or limit in numbers still flying, are the Shackleton, Ajeet, Bison, Firebar, SR-71A, Blackbird, Vampire and Westland 30. Others, like the Trident, have been transferred to the 'Very New and Rather Old' section.

The expansion in civil aviation, together with tough international noise and pollution regulations, has led to the emergence of a variety of new civil transport aircraft. These range from wide-body, long-range types through short/medium range down to feeder-liners. Russia has been particularly affected, with the need to build environmentally acceptable economic machines for both home consumption and export.

If anything, the similarity of design thinking in the new generations of competing civil aircraft has made instant recognition more difficult and a considerable amount of study is required.

In this edition, major revisions have been made throughout the text and many new silhouettes and photographs have been incorporated. The designations have been updated, as have the Military Aircraft of the Nations and Guided Missile sections.

Derek Wood
Cuckfield, June 1992

INTRODUCTION

This fifth edition of *Jane's World Aircraft Recognition Handbook* comes at a time when the subject remains as important as ever for military and civilian observers alike. This volume is intended as a primer for students of the subject, and is not a standard collection of aircraft types by country and manufacturer with full data. There are excellent volumes of this type such as *Jane's All the World's Aircraft*.

The aim has been to satisfy the needs of three types of recognition student:

Armed service, Coastguard or auxiliary personnel worldwide to whom recognition is vital for their allotted tasks.

Those who have an interest in aviation and wish to learn how to recognise aircraft from scratch.

The knowledgeable enthusiast in service or civilian life who requires quick answers, either to check judgement or for revision. This includes civil aviation personnel such as air traffic controllers.

The initial 'teach-in' section provides an introduction to the subject, while there is a glossary at the back, without which the newcomer would be lost in a world that has built up its own exclusive jargon.

The essential elements of airframes are illustrated, together with an explanation of the breakdown of the book into fixed-wing aircraft and helicopters of various distinctive types. The emphasis throughout is on shapes and not manufacturers or designations, and all groups are assembled on the basis of similarity in general configuration. After all, when an airborne object comes into view, the observer on the ground wants to refer to a shape to find out what it is. Is it jet or propeller-driven? Are its wings straight or swept? Are the engines on the wings?

The 500+ aircraft shown in the reference part of the book have been selected as most likely to be seen round the world during the lifespan of this edition. There is a limit to the number of aircraft that can be illustrated and those omitted include several 'one-offs', aircraft of which only a handful are flying, and ultra-lights and homebuilts.

Both military and civil machines are included, as it is impossible, even for the serviceman, just to study warplanes. Confusion can always arise if the observer has not covered all the significant types. In the early stages of the Second World War an axiom was adopted by those who were either unable or willing to learn recognition. Aircraft were divided into three categories: receding and presumed friendly; approaching and presumed hostile; and Lysanders. That the ultra-distinctive Lysander should be regarded as the only readily recognisable type is an indication of the very low standards that prevailed until recognition was really taken seriously and proper teaching methods were evolved. Faulty recognition in war has led to untold casualties which could have been avoided.

Black-and-white silhouettes have been used throughout the reference section of this book, as the detailed three-view silhouette remains the best method of encapsulating the shape and main features of any aircraft. Line drawings just do not give the same emphasis to recognition outline.

All sorts of so-called mnemonic aircraft-recognition systems have been invented; one such is 'WETFUR', standing for Wings, Engine, Tail Unit, Fuselage, Undercarriage and Radiator. In practice these methods are completely useless, as recognition depends on the aircraft's total appearance and there is usually little enough time to look for individual features, let alone reciting sets of letters. Mnemonics have no place here.

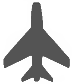
Long-winded descriptions of the aircraft with a mass of complex data also leave little impression on the recognition student and only serve to confuse; they too are omitted.

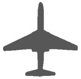
Additional information such as designation systems, code-name lists and general characteristics are very important, both for reference and to add to the general picture. They have therefore been included.

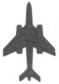
After the basic details on each type there is a list of the similar designs with which it might be confused. This has been done to stimulate interest and comparison. Some students may decide that aircraft X is much more like aircraft Y. If this comes after careful study of a number of silhouettes and photographs, then the individual's recognition knowledge will have been significantly extended.

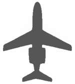
Quick-reference symbols

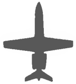
At the top outside corner of each page in the following chapters you will find a quick-reference symbol. These are designed to show the main characteristics of each class of aircraft, so that the user can find his way immediately to the right chapter after catching a fleeting glimpse of, say, a delta shape in the sky. In some cases one symbol has had to stand for two classes of aircraft. It would have been difficult to suggest high or low wings with simple plan-views, just as the addition of something to indicate fixed or retractable undercarriage would have made those symbols unnecessarily complicated. One symbol has therefore been used for both high and low-wing twin-propeller aircraft, while all three classes of single propeller designs are represented by a single plan view.

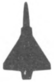

Jet, swept wing, fuselage engine(s)

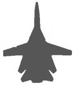

Jet, swept wing, flank/root engines


Jet, swept wing, underwing engines

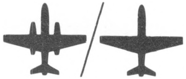

Jet, swept wing, rear engines

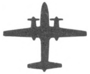

Jet, straight wing, rear engines

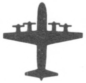

Jet, delta wing

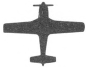

Jet, variable geometry

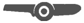
Stealth

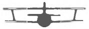

Jet, straight wing, fuselage/wing engine(s)

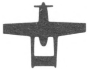

Twin propellers

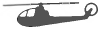

Four propellers

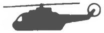

Single propeller

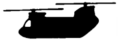

Amphibians

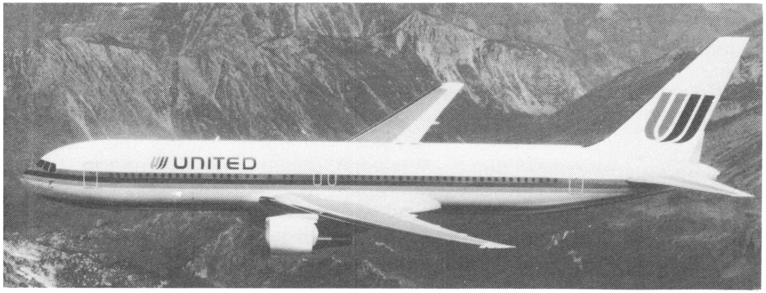

Biplanes


Twin booms

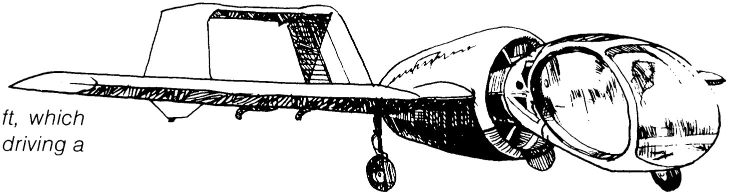

Helicopter, single rotor, light


Helicopter, single rotor, medium/heavy

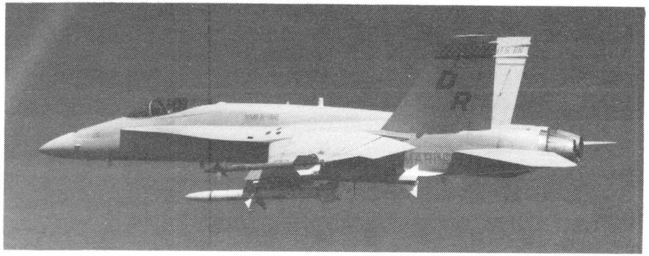

Helicopter, twin rotors



A good example of a modern twin-podded engine airliner with swept wings, the Boeing 767.



The very unusual Lovaux Optica observation aircraft, which looks like a jet but is in fact fitted with a piston engine driving a fan.



US Marine Corps F/A-18 Hornet with twin fins, highly swept inboard wing leading-edge and multiple weapons load affecting the general outline

THE BASICS OF RECOGNITION

The initial approach to aircraft recognition is daunting, confronting the student with a mass of shapes, hundreds of odd names, curious designations, incomprehensible specifications and strange descriptive terms.

It is essential for any student to work in stages, gradually acquiring knowledge and storing it. Like people's faces and figures, every aircraft and helicopter has its own characteristics. It may have one engine and straight wings; four engines and swept wings; a fat fuselage; a triangular wing; a tailplane on top of the fin; or, in the case of a helicopter, one or two rotors.

The permutations are endless, but ultimately all powered flying machines can be sorted out into categories for detailed study. This book is divided into categories based on wing shape and engine layout in the case of fixed-wing aircraft, and size and number of rotors for helicopters.

The basic structure of an aircraft has to be studied from the outset. Almost every powered flying machine (other than helicopters) has some wing form, a fuselage and a tail structure, the last-mentioned having either a horizontal stabiliser and a fin, or a fin alone (as in the case of some delta-wing designs such as the Mirage and Concorde). Each wing, fuselage and tail structure differs in some respect from another, as do the engine installations and air intakes, be they for gas turbines or piston engines. It is the combination of these features with individual characteristics that makes up an aircraft's total shape. Knowledge of such shapes is the essence of recognition.

The same theory applies to helicopters, except that wings appear only occasionally in stub form, tail structures consist of rear rotors and some miniature tails, and the main rotor(s) dominate the shape.

The best way for the beginner to use this book is to look first at totally different types, say the MiG-21 'Fishbed' fighter and the Boeing 747 airliner, or the Jaguar ground-attack aircraft and Chinook twin-rotor helicopter. In the first case, a single-engined delta-wing fighter with the engine in the fuselage just cannot resemble a giant 385+-seater with four jets slung under the wings. In the second case, the delta-wing Jaguar hardly compares with the Chinook, with its squat, boxlike fuselage and twin overhead rotors.

This process should be continued at random, selecting from the different sub-sections of the book. At the same time, the annotated drawings on pages 19–22 should be consulted to find out what the various parts of flying machines are and, in the case of flying controls, what they do. For an understanding of aviation terminology the glossary of terms and abbreviations at the end of this book can be used.

The second stage is for the reader to look at two of the aircraft in each sub-section which are similar in general layout but very different in detail characteristics. Take, for instance, the Corsair II and the Su-7 'Fitter A' in Section 1. The two wing shapes immediately strike the eye: that of the Corsair is broad in chord and moderately swept back, while the Su-7's has very sharp sweepback and slim chord. The Corsair fuselage is dumpy, with a distinctive 'pimple' above the nose intake. The SU-7, on the other hand, has a circular intake with a small pointed centrebody. Finally, the wing of the Corsair is shoulder-mounted while that of the Su-7 is positioned centre-fuselage. The Su-7 wing is straight in the head-on view while that of the Corsair has a marked anhedral.

After several excursions through the pages to see how shapes differ markedly or are superficially similar, the student should select his basic first 30 aircraft. If he is a member of a military or paramilitary force, he can choose the friendly and unfriendly types which he is most likely to encounter.

A mixed first 30 could consist of the following:

Military
Dassault Mirage 2000
MiG-29 'Fulcrum'
Su-27 'Flanker'
Tupolev Tu-20 'Bear'
McDonnell Douglas F-15
General Dynamics F-16
SEPECAT Jaguar
BAe Hawk
Panavia Tornado
Saab Viggen
Mikoyan MiG-25 'Foxbat'
BAe Sea Harrier
Mikoyan MiG-21 'Fishbed'
Boeing B-52
Tu-22M/Tu-26 'Backfire'

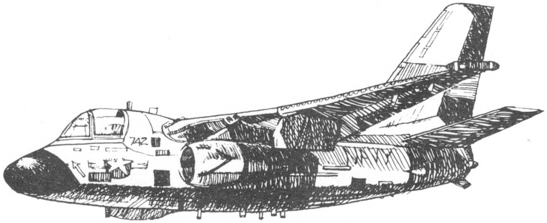
Civil
Airbus A300
Boeing 737
Boeing 747
McDonnell Douglas DC-8
McDonnell Douglas DC-9
McDonnell Douglas DC-10
Fokker 100
Airbus A320
Tupolev Tu-154 'Careless'
Piper Comanche
Yakovlev Yak-40 'Codling'
Fokker F.27 Friendship
BAe ATP
Piper Cherokee
Beech Mentor

For helicopters an initial eight could be:

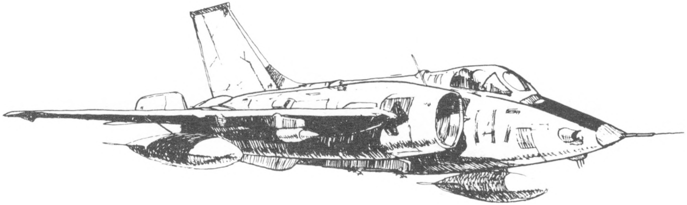
Military
Westland Lynx
Ka-50 'Hokum'
Boeing Chinook
Sikorsky Black Hawk

Civil
Ka-26 'Hoodlum'
Aerospatiale Alouette III
Hughes 500
MBB BO105

The student who wants to devise his own programme could well make his first selection from the types which fly from the nearest civil or military airfield, or both. After the first 30, a further 30 can be chosen, and so on. After the student has mastered his first 30 aircraft, he will be able to apply his self-acquired training to any types of his choice.



The Lockheed S-3A Viking carrierborne anti-submarine aircraft. It has a shoulder-mounted swept wing, twin underwing turbofans and a swept fin.



The Nanchang Q-5, a Chinese development of the MiG-19 with flank intakes.

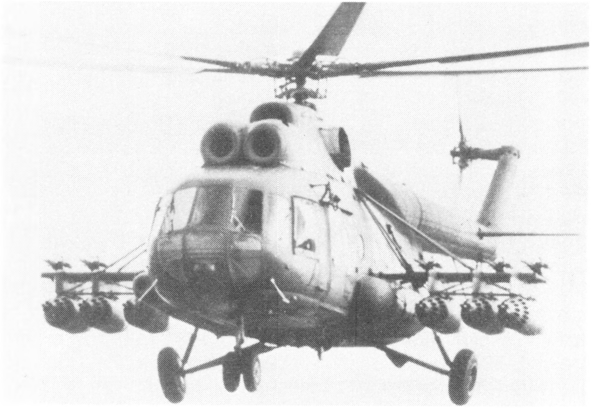
Throughout, the recognition of an aircraft must involve a total impression of the shape, but with certain distinctive elements borne in mind. When any aircraft appears it must be watched right across the sky so that it can be viewed from every angle.

In the air, the head-on view of an F-15 fighter looks very different to a side or plan view, possibly leading to confusion with the Soviet MiG-25 viewed from the rear, going away, also often provide problems, as with the Mirage and Viggen. Particularly difficult are the head-on and retreating views of the transports with twin and triple rear-engine layouts, not least the Soviet Tu-134 and Tu-154 airliners.

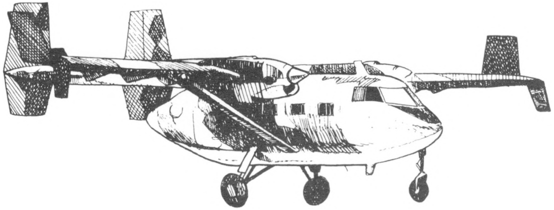
Helicopters require special study as, at a distance and in poor weather, their shapes tend to be ill-defined. In certain cases very detailed knowledge of outlines is needed to differentiate between types. Examples of similar outlines are the German MBB BO105 and the Hughes 500D helicopters.

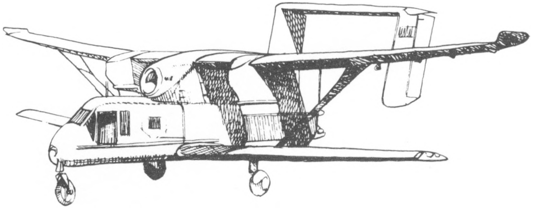
The only way to progress in aircraft recognition is to 'look and learn' as frequently as possible. This means not only scanning the skies but examining every photograph or drawing in newspapers and magazines and watching for aircraft on television. A scrapbook of picture cuttings and notes is an excellent way of improving the art. Video films can also be referred to again and again.

A typical Russian twin-turbine helicopter, the Mi-8 'Hip F' with single main rotor, fixed tricycle undercarriage and stub wings carrying armament.

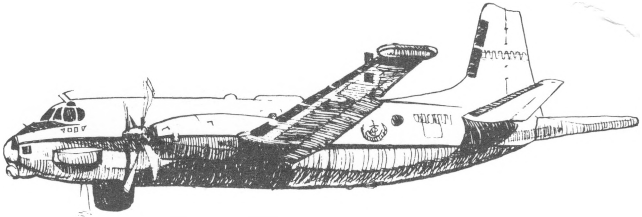


When an unknown aircraft flies over, or an uncaptioned photograph appears in a journal, note its main features and consult the appropriate section in this book. The more 'mental images' of different types that can be stored away, the easier recognition becomes.





Really odd shapes. Top, the IAI 202 Arava high wing transport with twin booms, fixed undercarriage and winglets at the tips of the strut-braced wings. Below, the M-15 Belphegor agricultural biplane with twin booms, a turbofan engine and chemical hoppers between the wings.

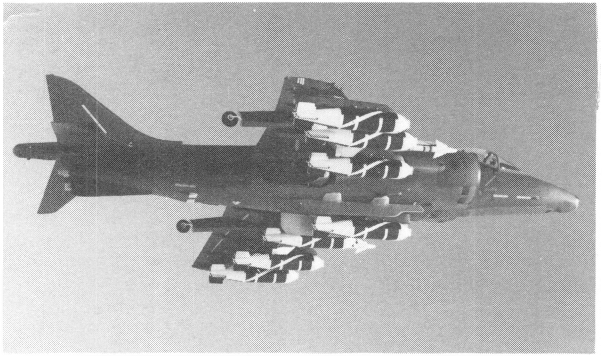


Radomes, tip tanks and tail-mounted Magnetic Anomaly Detector (MAD) affect the outline of this twin-turboprop Atlantic maritime reconnaissance aircraft.

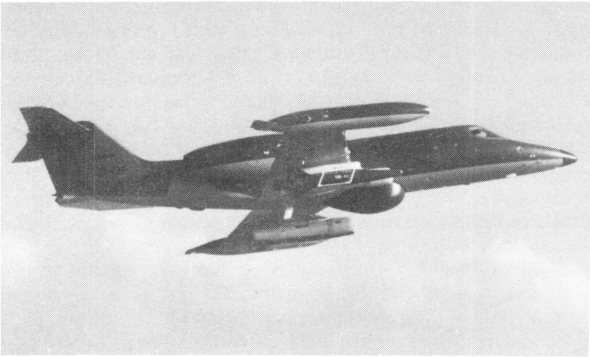
Changing outline

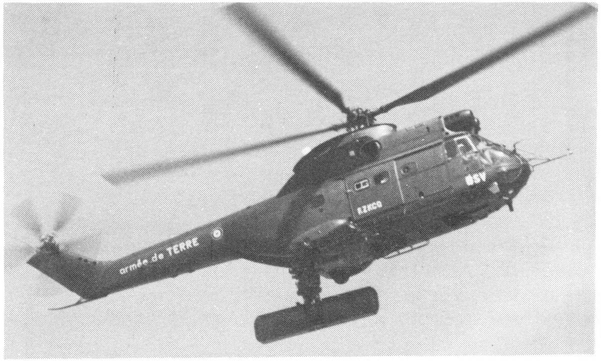
Having learned the flying exterior of an aircraft, the effects of external items that may be attached to it require attention. Modern military aircraft carry a great variety of external 'stores': missiles, rocket pods, bombs, reconnaissance pods, externally mounted guns, electronic jamming pods and auxiliary fuel tanks, to mention a few. As an example of the resulting outline change, the podded fuel tanks under the wings of a Hercules transport can, at a distance, give the impression of six engines instead of four. Radomes and other bumps or bulges on an aircraft also change the shape when viewed from different angles.

Variable-geometry or swing-wing aircraft present problems, as moving the wings from straight to fully swept changes the outline continuously. Also, some wings pivot from the roots while others have movable outer panels.



The effects of external loads on outlines. Upper left, Harrier GR5 carrying seven bombs and two Sidewinder missiles. Lower left, a Learjet with wingtip tanks, belly radome and underwing stores. Below, a Puma helicopter fitted with an Orchidée battlefield surveillance radar below the fuselage.





Finally, an aircraft preparing to land can appear completely different from its normal cruising self. For instance, a Boeing 747 cruising across the sky is not the same as a 747 on the approach to an airfield with its multi-wheel undercarriage down and massive flaps extended.

To appreciate all the changing aspects of aircraft in the air, it is essential to keep watching with the eyes or, preferably, with binoculars. When there is cloud, watch where the aircraft enters and judge where it may reappear.

Viewed from above

For the military pilot, aircraft flying below or positioned on the ground are very important. The pilot's view can be very different from that of the ground observer. It takes a sharp eye to recognise a fleeting shape parked near a hangar, in a revetment, or with its nose sticking out of a shelter. Special study is needed to separate shapes on the ground from their surroundings, and camouflage makes this even more difficult.

In the air, it is easier to recognise aircraft seen from below. From above, aircraft blend with the terrain, particularly when they are camouflaged, or have their outlines broken up by reflected light. The military viewer from above also has to differentiate between real aircraft and 'dummies'.

Contrails

At high altitude condensation of the water vapour in the exhaust gas of an aero-engine produces a 'contrail', a tell-tale stream of white vapour across the sky. On a clear day it is often possible to recognise the aircraft at the head of the trail, but usually binoculars are essential. When there is patchy cloud the point of entry of the contrail should be noted to find the direction of exit. Large multi-engined aircraft make several trails which usually blend into one. With a lot of experience it is possible to differentiate between certain types, but great care is needed.

Sound

Sound is very often the first indication that an aircraft or helicopter is approaching. Weather effects and the varied abilities of human ears can however make sound very misleading. It may appear to come from completely the wrong quarter, causing the observer to miss the approaching aircraft altogether. With fast aircraft, the subject may be well ahead of its noise. Sound is nevertheless important and certain basic facts can be gleaned from it. It is usually possible to differentiate between a piston engine and a jet; a turboprop is distinctive, while the beat of a helicopter rotor sounds different from the noise of a fixed-wing aircraft. A particularly distinctive helicopter noise is that of the Chinook.

It is important to both watch *and* listen in order to associate sound with a particular type. A great deal of practice is needed before making snap judgements on sound alone, and even then there is a higher chance of error.

TEACHING RECOGNITION

Teaching aircraft recognition, whether in the services or a club, is an exacting task calling for method, efficiency and, above all, background knowledge of the subject. The ace spotter who can recognise anything does not necessarily make a good instructor, as he may be too far removed from the novice's problems.

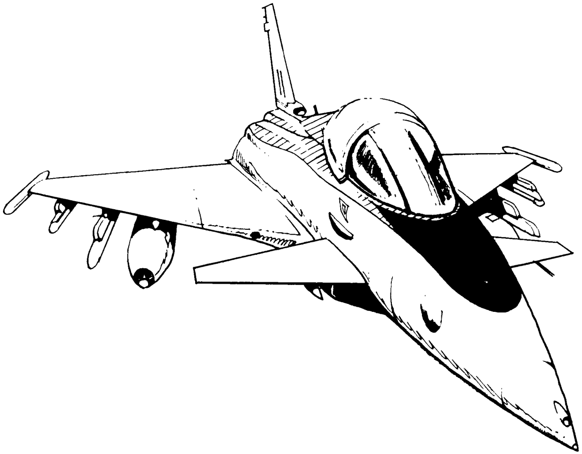
An instructor must be able to make the subject live and to translate flat pictures and silhouettes into 3D images which will remain imprinted on the pupil's mind; hence the need for background knowledge. The tools of the instructor's trade are silhouettes, black-and-white or colour photographs and slides, filmstrips, the slide projector, the episcope and the overhead projector. Sometimes a film can provide excellent material, though a particular view cannot be shown again as quickly as with the other devices. A blackboard on which instructor and students can put quick sketches is extremely useful.

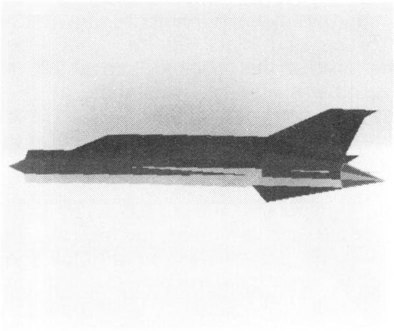
Models are also good tools, both to make and look at. Putting a plastic kit together will leave a lasting impression of the subject's shape and characteristics. Models may also be used in conjunction with a 'shadowgraph'. The 'flash trainer' is also an effective aid, though not always easy to obtain. The essence of the flash trainer is a shutter which flashes the image onto the screen for a brief period. With a little ingenuity it is possible to adapt an old camera shutter for use with either an episcope or a slide projector.

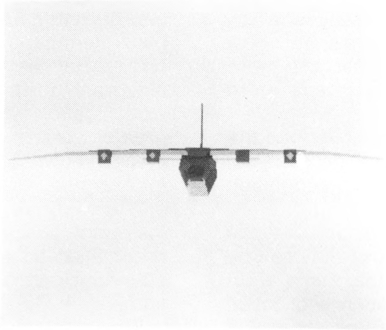
In approaching recognition training, it is essential to plan ahead and not swamp the pupils with an excess of information. An initial test will decide the standard of the class, while discussion will reveal the level of understanding of terms and nomenclature. A large sketch of the basic elements of fixed-wing aircraft and helicopters is a must for absolute beginners.

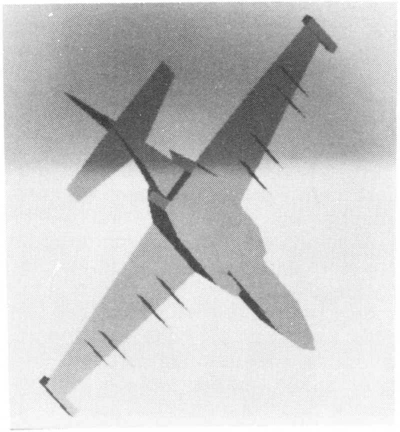
As mentioned earlier, contrasting types should be illustrated first to give the pupil some 'feel'; thereafter types should be taught in groups. The make-up of the groups will depend on the priorities and interests of the class: whether they are servicemen or civilians, for instance.

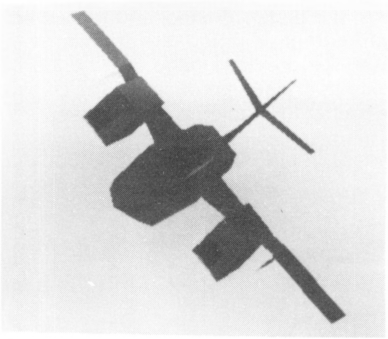
The European Fighter Aircraft, EFA, one of the new generation of combat aircraft with foreplanes.

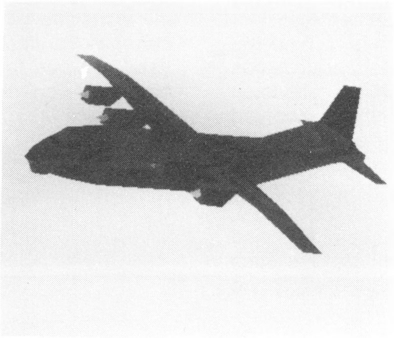












Computer-generated aircraft images produced in the British Aerospace Microdome trainer for Rapier missile crews (l to r): MiG-21 'Fishbed K', An-12 'Cub', Su-25 'Frogfoot', Yak-28 'Brewer', and An-12 'Cub' again.

Each aircraft should be the subject of a lesson on its own, with a mixture of silhouettes and photographs or slides. When instruction has been given in a dozen types, there should be a full revision session and a test. As the pupils become more proficient, so the tests should be varied and made more difficult.

The instructor must ensure that he does not overload the class, which will cause confusion, and also that he does not bore them. Boredom has been the enemy of good recognition training since aircraft were first used in war.

As time goes on, it will become apparent that certain types are more difficult to recognise, largely because they can be confused in outline with others of similar shape. Every effort should be made to show pictures and silhouettes of these difficult aircraft at frequent intervals until the points of difference are clearly understood. Care should however be taken to see that the pupils do not get into the bad habit of recognising the photograph rather than the aircraft itself.

The instructor can use a variety of methods to hold the students' interest. If an aviation incident, military or civil, has been headlined in the newspapers or shown on television recently, a short illustrated talk on the type or types involved should be given while the subject is fresh in the pupils' minds.

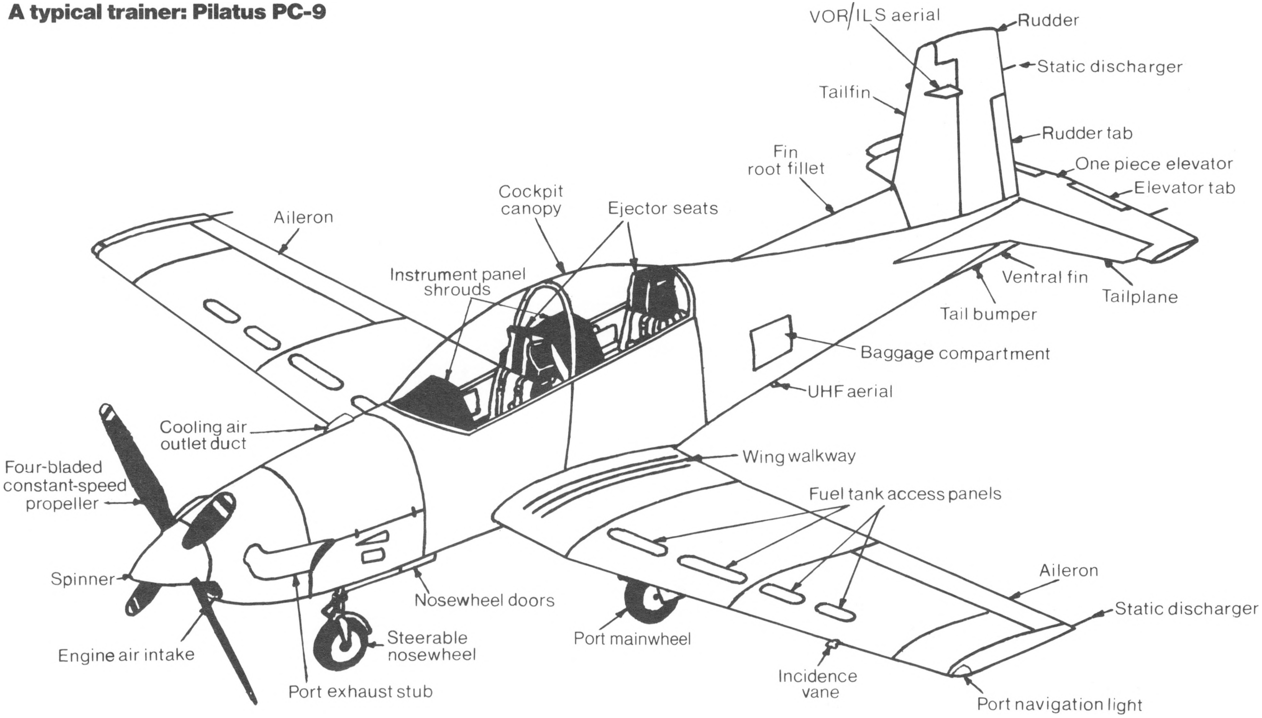
If possible, the classroom walls should be decorated with aircraft illustrations, preferably large ones, which can be changed or added to at intervals. If this is not possible, sections of hardboard covered with suitable pictures and captions should be taken along to the meetings. One such board can be used for an 'aircraft of the week' to which the class can give special attention.

'Sillographs', which form good training and test material, can be made very simply by inking in photographs with a black felt pen or a brush and black ink or paint. The proficiency test at the end of this book is presented in sillograph form. Cartoons are also of assistance, as the exaggeration stresses key points of outline. To achieve greater variety, photographs from journals can be cut into pieces showing a fin, nose, engine nacelle or part of a wing, for example.

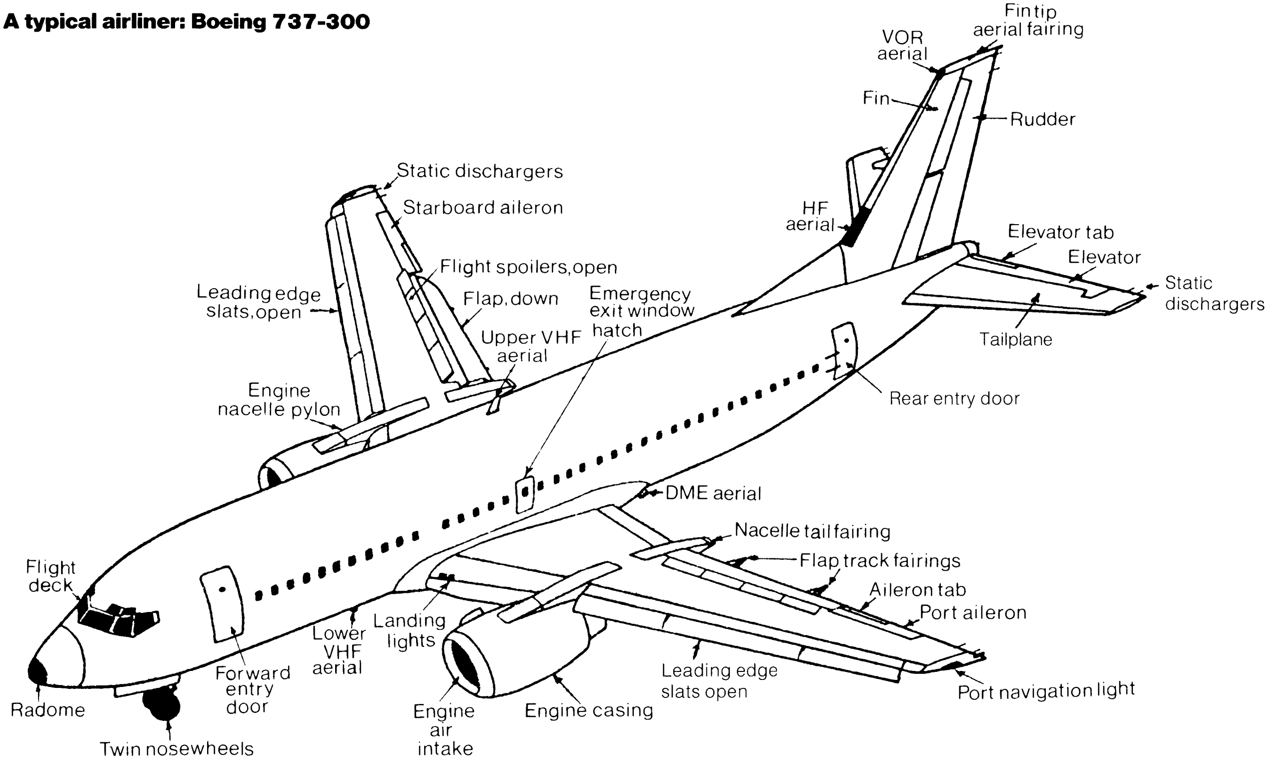
A scrapbook can be kept handy and added to by both instructor and class. Prizes can be given for success in recognition tests. Properly organised visits to airfields and attendance at air displays will make recognition training come alive.

Finally, electronic simulators are being used to provide a new dimension in aircraft recognition. Computer-generated images of remarkable accuracy can be created. The images 'fly' correctly, with scale and distance effect and the aspect changes continuously. Weather is included – from mist to various cloud levels. On the previous page is a series of computer-generated aircraft images produced in the British Aerospace Microdome trainer for Rapier missile crews.

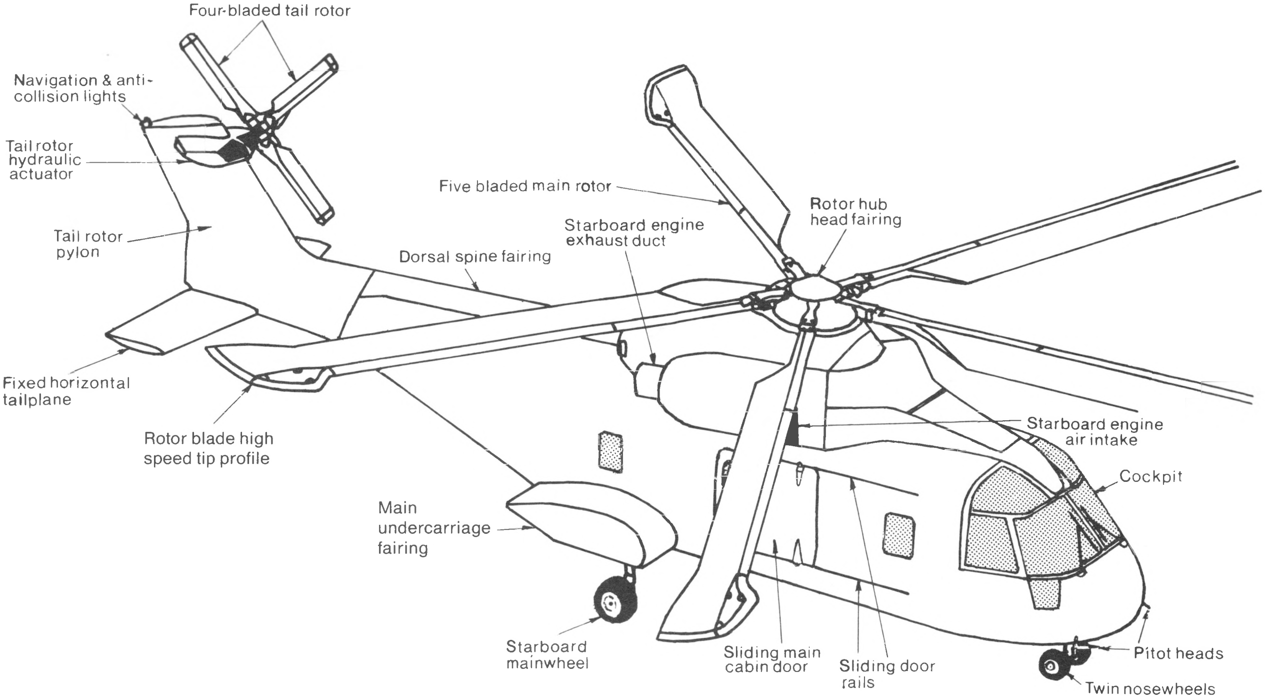
A typical trainer: Pilatus PC-9


VOR/ILS aerial
Rudder
Static discharger
Tailfin
Rudder tab
Fin root fillet
One piece elevator
Elevator tab
Cockpit canopy
Ejector seats
Aileron
Ventral fin
Tailplane
Instrument panel shrouds
Tail bumper
Baggage compartment
UHF aerial
Cooling air outlet duct
Wing walkway
Four-bladed constant-speed propeller
Fuel tank access panels
Aileron
Spinner
Static discharger
Nosewheel doors
Steerable nosewheel
Port mainwheel
Engine air intake
Incidence vane
Port exhaust stub
Port navigation light

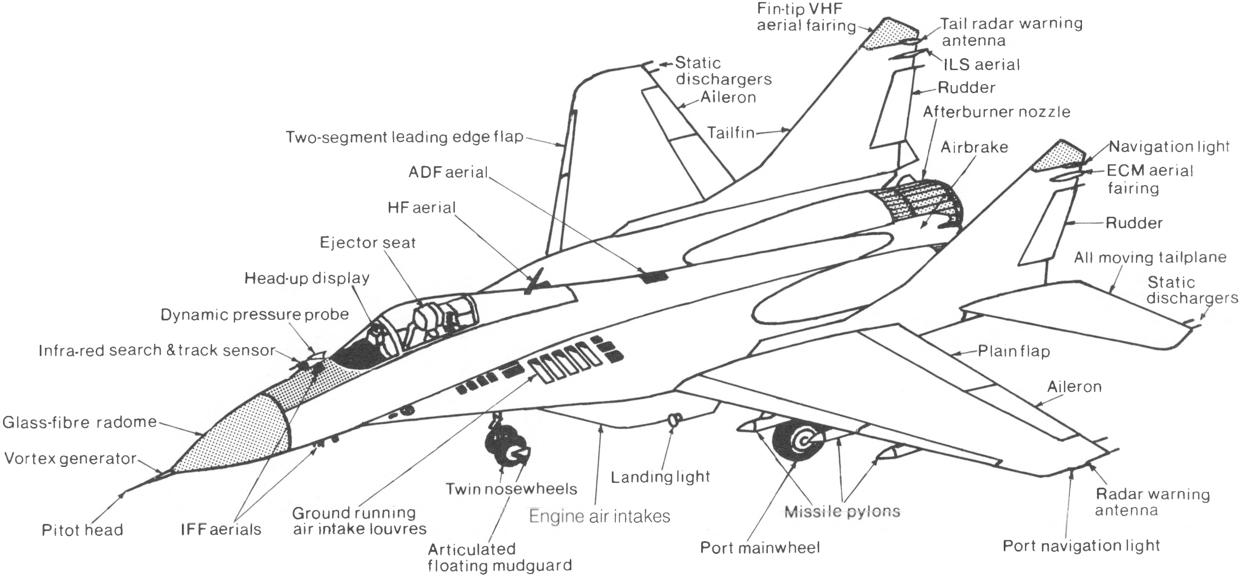
A typical airliner: Boeing 737-300

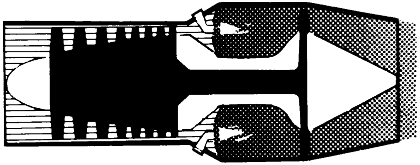

Fin tip aerial fairing
VOR aerial
Fin
Rudder
Static dischargers
Starboard aileron
HF aerial
Elevator tab
Elevator
Static dischargers
Flight spoilers, open
Leading edge slats, open
Flap, down
Emergency exit window hatch
Tailplane
Upper VHF aerial
Engine nacelle pylon
Rear entry door
DME aerial
Nacelle tail fairing
Flap track fairings
Flight deck
Aileron tab
Port aileron
Landing lights
Lower VHF aerial
Forward entry door
Leading edge slats open
Port navigation light
Radome
Engine air intake
Engine casing
Twin nosewheels

A typical helicopter: EH Industries EH 101


Four-bladed tail rotor
Navigation & anti-collision lights
Tail rotor hydraulic actuator
Five bladed main rotor
Rotor hub head fairing
Starboard engine exhaust duct
Tail rotor pylon
Dorsal spine fairing
Fixed horizontal tailplane
Rotor blade high speed tip profile
Starboard engine air intake
Cockpit
Main undercarriage fairing
Starboard mainwheel
Sliding main cabin door
Sliding door rails
Pitot heads
Twin nosewheels

A typical modern combat aircraft: MiG-29 'Fulcrum-A'

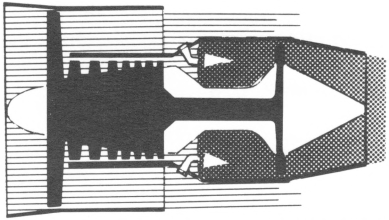

Fin-tip VHF aerial fairing
Tail radar warning antenna
ILS aerial
Rudder
Afterburner nozzle
Static dischargers
Aileron
Tailfin
Two-segment leading edge flap
ADF aerial
HF aerial
Airbrake
Navigation light
ECM aerial fairing
Rudder
All moving tailplane
Static dischargers
Ejector seat
Head-up display
Dynamic pressure probe
Infra-red search & track sensor
Plain flap
Aileron
Glass-fibre radome
Vortex generator
Pitot head
IFF aerials
Ground running air intake louvres
Twin nosewheels
Articulated floating mudguard
Landing light
Engine air intakes
Port mainwheel
Missile pylons
Radar warning antenna
Port navigation light



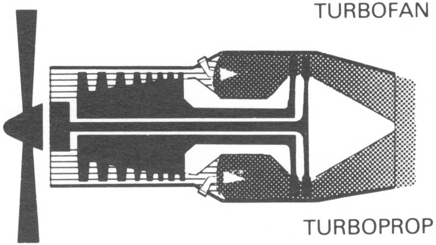
TURBOJET

A basic understanding of the four major classes of gas-turbine engine is an important part of aircraft-recognition training. For instance, one of the principal differences between such broadly similar types as the C-141 Starlifter and C-5A Galaxy is the fact that the former is powered by small-diameter turbofans while the latter has high-bypass-ratio turbofans, with their distinctive outsize front fans.

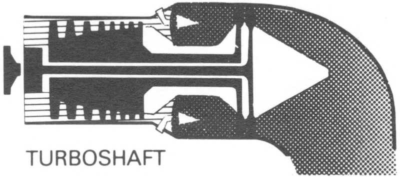
Gas turbines basically consist of an air compressor at the front, combustion chambers for burning the compressed air and a turbine at the back which is driven by the hot gases. In these drawings the hot-air flow is indicated by shading. The turbojet is a reaction engine which obtains its power by thrusting backwards a large weight of air. The turbofan is also a reaction engine but it differs from the turbojet in having part of the compressed air bypassed round the hot section of the engine, finally merging with the hot-air stream at the back. The turboprop has an extra turbine which drives the propeller in front. The turboshaft engine is virtually a turboprop without a propeller, the extra turbine being coupled to a shaft to drive a helicopter rotor.



TURBOFAN



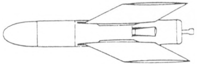
TURBOPROP



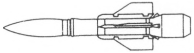
TURBOSHAFT

A wide variety of missiles are now carried as external load on military aircraft. The missiles themselves need to be recognised in order to determine the capability of the aircraft bearing them. In addition the missiles change the outline of the aircraft. The series of side views that follows shows the weapons that can form the payload of the military aircraft in this book.
(Courtesy: *Jane's Air-Launched Weapons*)

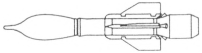
AIR-TO-SURFACE MISSILES



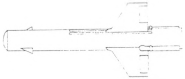
AS 11 [France]



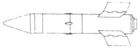
HOT 1 [International]



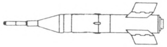
HOT 2 [International]



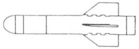
AT-2 'Swatter' [Russia]



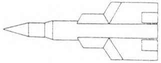
AT-3 'Sagger' [Russia]



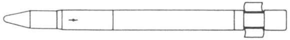
AT-3 'Sagger' improved [Russia]



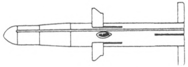
Hongjian 8 [China]



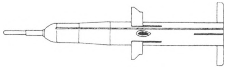
Mathogo [Argentina]



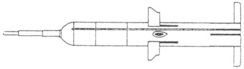
AT-6 'Spiral' [Russia]



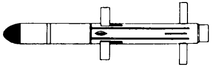
BGM-71 A/B TOW basic [USA]



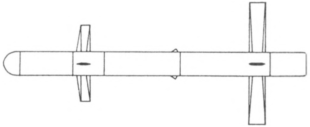
BGM-71C ITOW [USA]



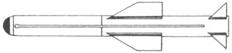
BGM-71D TOW 2 [USA]



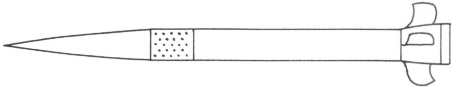
Swift [South Africa]



Polyphem AT [International]



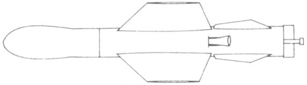
ATGW-3LR Trigat [International]



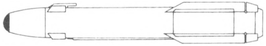
Hypervelocity Missile [USA]

metres

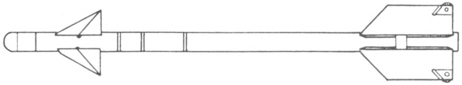
AIR-TO-SURFACE MISSILES



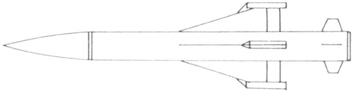
AS 12 [France]



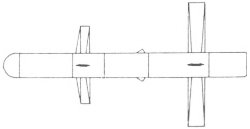
AGM-114A Hellfire [USA]



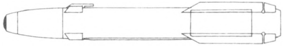
AGM-122 Sidearm [USA]



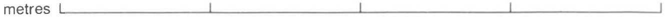
AS 15 [France]

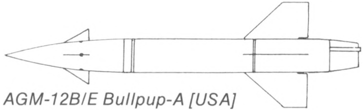


Polyphem AH [International]

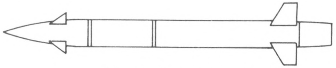


AGM-114B Hellfire [USA]

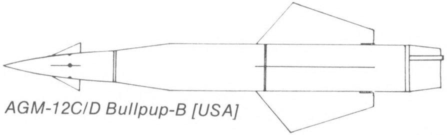




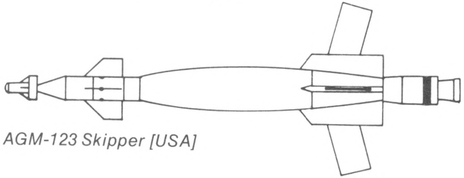
AGM-12B/E Bullpup-A [USA]



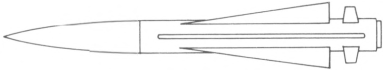
Martin Pescador [Argentina]



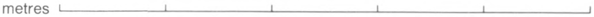
AGM-12C/D Bullpup-B [USA]



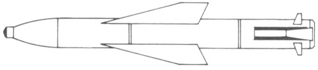
AGM-123 Skipper [USA]



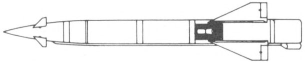
RB 05 [Sweden]



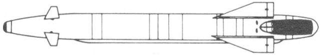
AIR-TO-SURFACE MISSILES



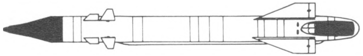
AS 30L [France]



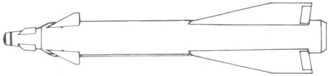
AS-7 'Kerry' [Russia]



AS-10 'Karen' [Russia]

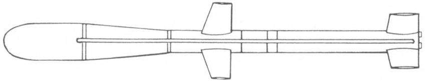


AS-12 'Kegler' [Russia]

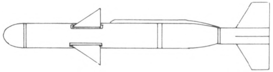


AS-14 'Kedge' [Russia]

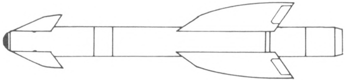
metres



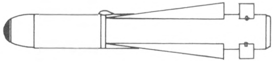
Marte 2A [Italy]



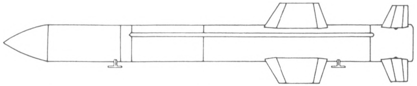
Sea Skua [UK]



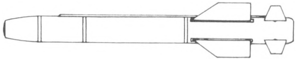
AGM-119 Penguin 3 [Norway]



AGM-65 Maverick [USA]



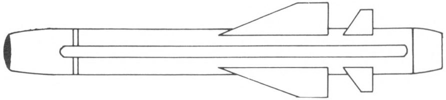
Gabriel 3AS [Israel]



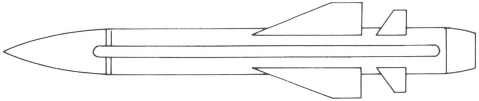
Nimrod [Israel]

metres

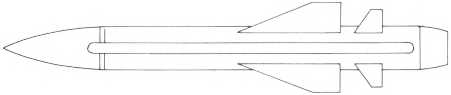
AIR-TO-SURFACE MISSILES



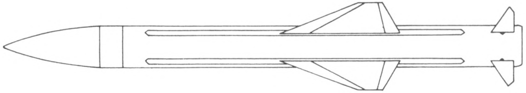
AJ168 Martel TV [International]



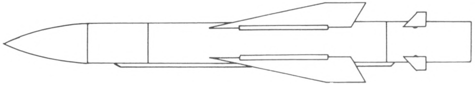
AS37 Martel AR [International]



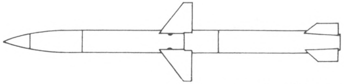
Armat [France]



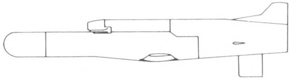
AM-39 Exocet [France]



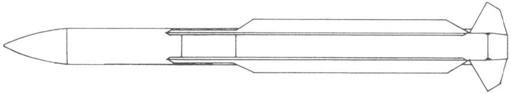
AS-34 Kormoran [Germany]



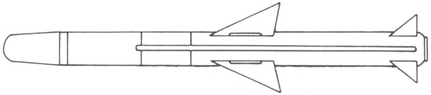
AGM-45 Shrike [USA]



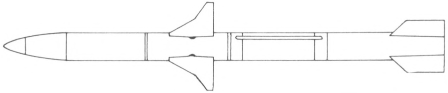
AGM-136 Tacit Rainbow [USA]



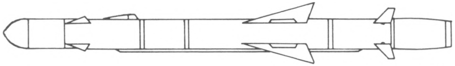
AGM-78 Standard [USA]



ASM-1 [Japan]

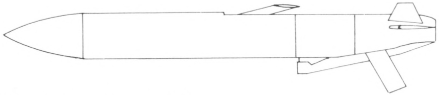


AGM-88 Harm [USA]

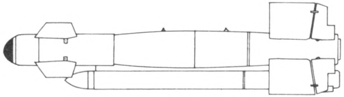


ALARM [UK]

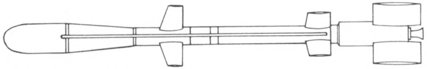
AIR-TO-SURFACE MISSILES



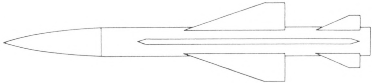
Apache [International]



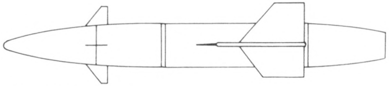
AGM-130 [USA]



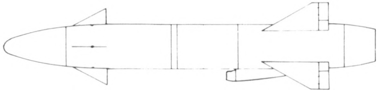
Marte 2 [Italy]



AS-11 'Kilter' [Russia]

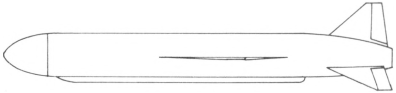


RBO4 [Sweden]

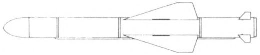


RBS15 [Sweden]

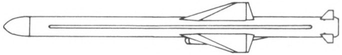
metres



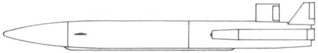
C-601 [China]



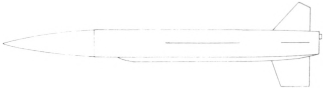
YJ-1 [China]



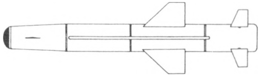
YJ-2 [China]



C-101 [China]



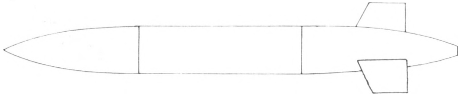
AS-9 'Kyle' [Russia]



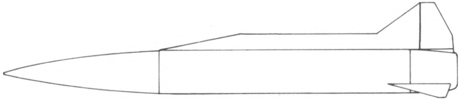
AGM-142 Popeye [Israel]

metres

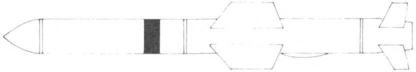
AIR-TO-SURFACE MISSILES



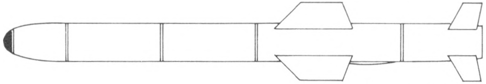
AGM-69 SRAM [USA]



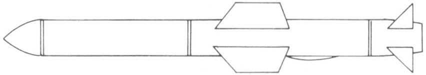
AGM-131 SRAM-2 [USA]



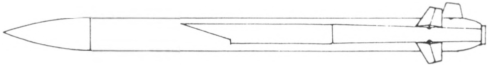
AGM-84 Harpoon [USA]



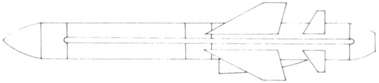
AGM-84E SLAM [USA]



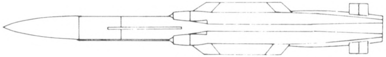
Hsiung Feng 2 [Taiwan]



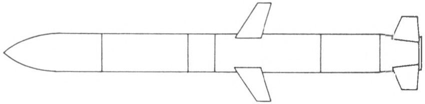
ASMP [France]



Sea Eagle [UK]

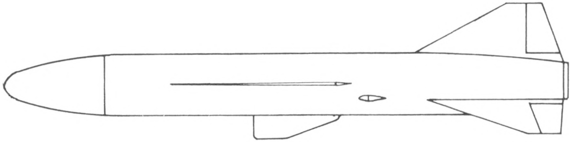


ANS [International]

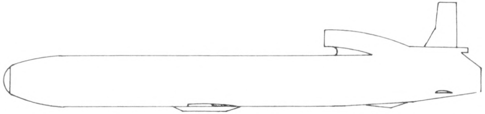


Gabriel 4LR [Israel]

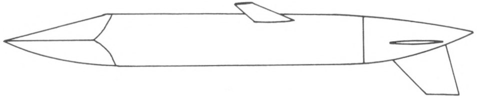
AIR-TO-SURFACE MISSILES



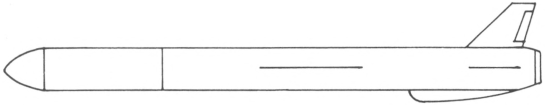
HY-4 [China]



AGM-86 ALCM [USA]

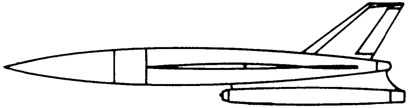


AGM-129 ACM [USA]

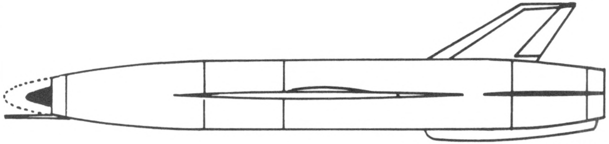


AS-15 'Kent' [Russia]

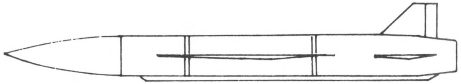
metres



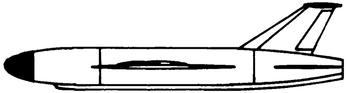
AS-2 'Kipper' [Russia]



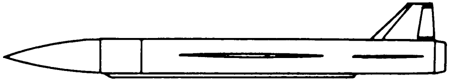
AS-3 'Kangaroo' [Russia]



AS-4 'Kitchen' [Russia]



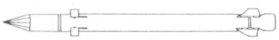
AS-5 'Kelt' [Russia]

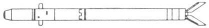


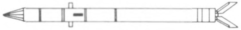
AS-6 'Kingfish' [Russia]

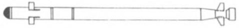
metres

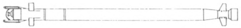
AIR-TO-AIR MISSILES

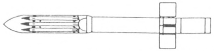

Mistral [France]

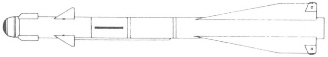

SA-7 'Grail' [Russia]

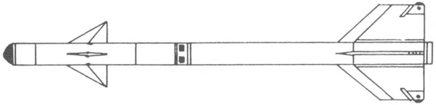

SA-16 [Russia]

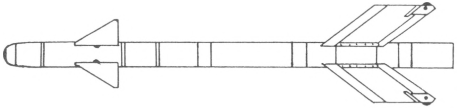

FIM-92 Stinger [USA]

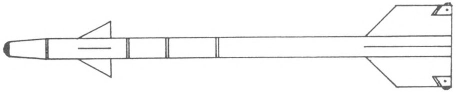

FIM-92 Stinger ADSM [USA]

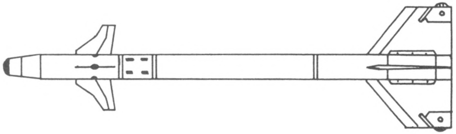

Starstreak [UK]

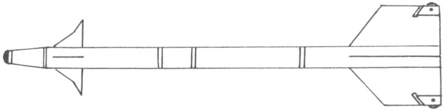

AA-8 'Aphid' [Russia]

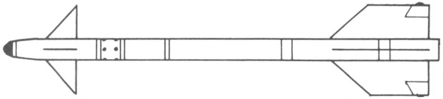

MAA-1 [Brazil]


PL-8 [China]


PL-2 [China]

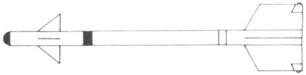

PL-9 [China]


PL-5 [China]

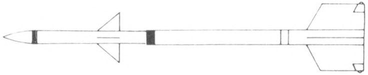

Sky Sword 1 [Taiwan]

metres

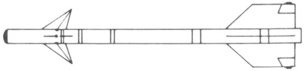
AIR-TO-AIR MISSILES



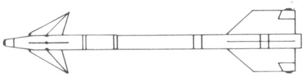
AA-2D 'Atoll' [Russia]



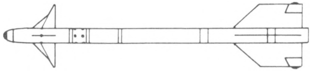
AA-2C 'Atoll' [Russia]



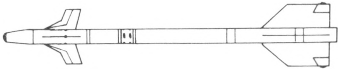
AIM-9B Sidewinder [USA]



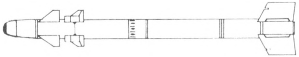
AIM-9D Sidewinder [USA]



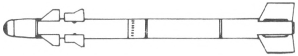
AIM-9L/M Sidewinder [USA]



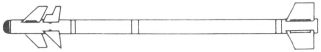
AIM-9P Sidewinder [USA]



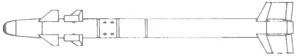
R-550 Magic 2 [France]



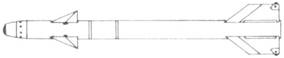
PL-7 [China]



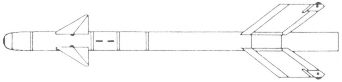
Kukri V3 [South Africa]



Darter [South Africa]



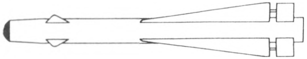
Shafrir 2 [Israel]

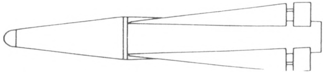


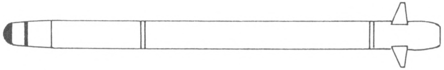
Python 3 [Israel]

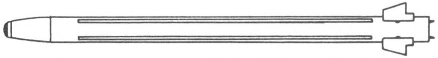
metres

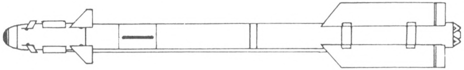
AIR-TO-AIR MISSILES

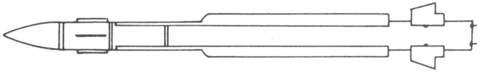

AIM-4D Falcon [USA]

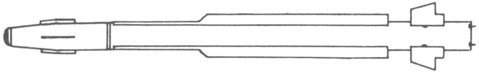

AIM-26B Falcon [USA]

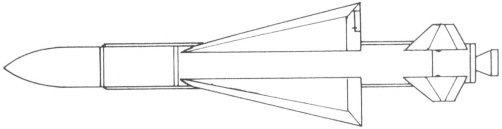

AIM-132 ASRAAM [International]

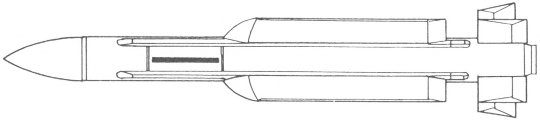

MICASRAAM [International]

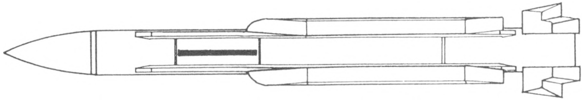

AA-11 'Archer' [Russia]


MICA radar [France]


MICA IR [France]

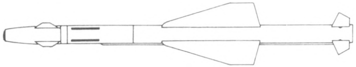

R 530 [France]


Super 530D [France]

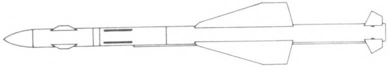

Super 530F [France]

metres

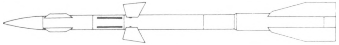
AIR-TO-AIR MISSILES



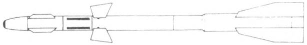
AA-7 'Apex' IR [Russia]



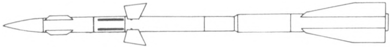
AA-7 'Apex' radar [Russia]



AA-10 'Alamo A' (R-SR) [Russia]

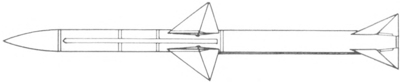


AA-10 'Alamo B' (IR) [Russia]

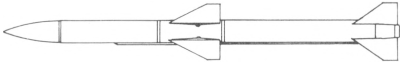


AA-10 'Alamo C' (R-LR) [Russia]

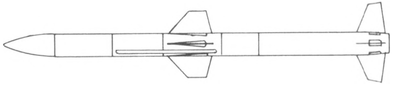
metres



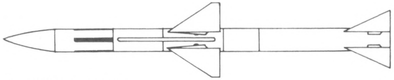
Aspide 1 [Italy]



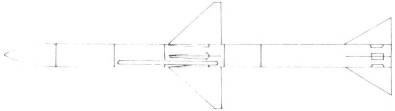
Aspide 2/IDRA [Italy]



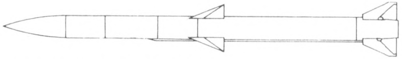
Sky Sword 2 [Taiwan]



Sky Flash [UK]



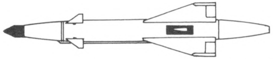
AIM-7 Sparrow [USA]



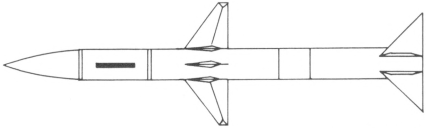
AIM-120 AMRAAM [USA]

metres

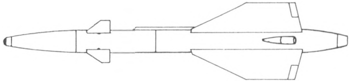
AIR-TO-AIR MISSILES



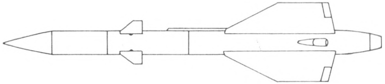
PL-1 *[China]*



PL-10 *[China]*

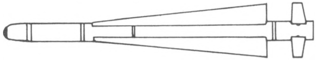


AA-3 'Anab' IR *[Russia]*

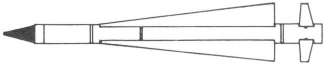


AA-3 'Anab' radar *[Russia]*

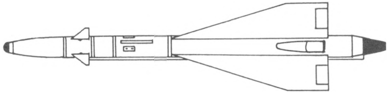
metres



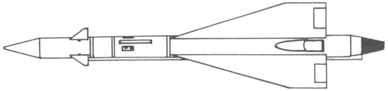
AA-5 'Ash' IR *[Russia]*



AA-5 'Ash' radar *[Russia]*

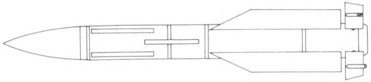


AA-6 'Acrid' IR *[Russia]*

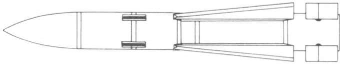


AA-6 'Acrid' radar *[Russia]*

metres



AA-9 'Amos' *[Russia]*



AIM-54 Phoenix *[USA]*

metres

AIRCRAFT AND GUIDED WEAPON DESIGNATIONS

The letters and numbers used to designate aircraft can be very confusing for the student. Apart from learning shapes, he has to say exactly what they are or his visual knowledge is useless. A name is always the easiest thing to remember, but in a number of cases names are not allocated or the type will appear initially with a designation before being named later. Examples of the latter are the Panavia Tornado, which began life as the MRCA (Multi-Role Combat Aircraft), and the Lockheed L-1011, which was subsequently named TriStar.

Many nations use company design numbers and/or a name, with sub-variants simply given as mark numbers. It is necessary in many cases to know the mark numbers, as the aircraft can look very different. For instance, the Boeing E-3A differs significantly from the KC-135

On the civil side there are many types which are un-named and bear only design numbers, such as the Boeing 707, 727, 737 and 747, and McDonnell Douglas DC-8, DC-9, DC-10 and MD-80. Airliners also tend to acquire suffix letters or numbers to denote different variants: 747SP, 707-320C and Airbus A320-200.

Five countries with special designation systems are: the United States, the Commonwealth of Independent States, the United Kingdom, Canada, and China.

UNITED STATES MILITARY

The US military system appears at first to be very complicated but is in fact quite logical. It is based on the use of letters and numbers.

All United States service aircraft, guided weapons etc are assigned designations, referred to as Mission Design Series (MDS) designators. These describe the machine's basic mission, its place in the sequence designed for that function, and its place in the sequence of variants of the type. The designations are broken down as follows:

Status prefix letter This is used only when required to indicate that an aerospace vehicle is not standard because of its test, modification, experimental, or prototype design. For aircraft, the symbol appears to the immediate left of the modified mission symbol or basic mission symbol. For rockets and missiles, it is to the immediate left of the launch environment symbol or mission symbol.

Modified Mission (aircraft only) This letter is used only when needed to identify modifications to the basic mission of an aircraft and appears to the immediate left of the basic mission letter. Only one modified mission symbol is used in any one MDS.

Launch Environment (rockets and missiles only) This symbol identifies the launch environment or platform parameters. It appears to the immediate left of the mission symbol. Only one of these symbols is used in any one MDS.

Basic Mission (aircraft only) This letter identifies an aircraft's primary function or capability. It appears to the immediate left of the vehicle type letter or design number separated by a dash.

Vehicle Type (aircraft only) This letter is required only for rotary wing, vertical or short take-off/landing (VTOL/STOL) and glider aircraft and is accompanied by a basic mission or modified mission letter. It appears to the immediate left of the design number.

Mission (rockets, missiles and space systems only) This letter identifies the basic function or capability of the rocket or missile. It appears to the immediate left of the rocket- or missile-type symbol.

Vehicle Type (rockets, missiles and space systems only) This letter identifies the kind of unmanned vehicle. It appears to the immediate left of the design number separated by a dash.

Design Number This number identifies major design changes within the same mission category. Design numbers run consecutively beginning with '1' for each category. A dash separates the design number from the symbol to its immediate left.

Series This letter identifies the first production model of a particular design and later models representing major modifications that alter significantly the relationship of the vehicle to its nonexpendable system components or change its logistics support. Series symbols are consecutive beginning with 'A' and appear to the immediate right of the design number. To avoid confusion, the letters 'I' and 'O' are not used for this symbol.

Configuration Number (rockets and missiles only) This number is used only when denoting configuration changes affecting performance or tactics but not affecting non-expendable components or logistics support. It appears to the immediate right of the series symbol separated by a dash. Each military department determines its own method for assigning configuration numbers.

Block Number (aircraft only) This number identifies a production group of identically configured aircraft within a particular design series. The numbers are assigned in multiples of five (01, 05, and 10). Intermediate block numbers are reserved for field modifications and applied by the user military department.

Serial Number This number identifies a specific aerospace vehicle. Each military department determines its own method for assigning serial numbers.

Aerospace Vehicle MDS (Mission, Design, Series designators) for aircraft The following list outlines the symbols used in aircraft MDS.

Status Prefix **G** Permanently Grounded, **J** Special Test (temporary), **N** Special Test (permanent), **X** Experimental, **Y** Prototype, **Z** Planning.

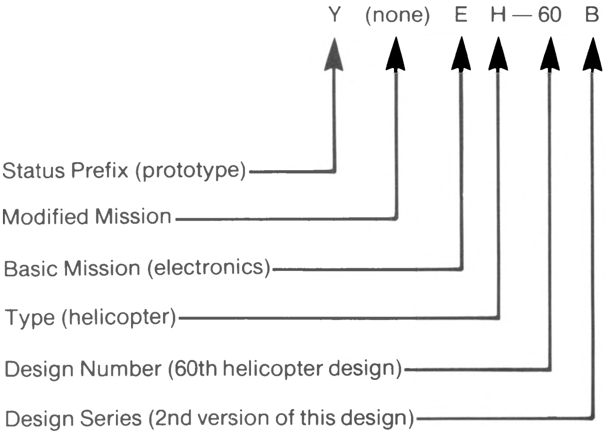
Modified Mission **A** Attack, **C** Transport, **D** Director, **E** Special Electronic Installation, **F** Fighter, **H** Search and Rescue, **K** Tanker, **L** Cold Weather, **M** Multimission, **O** Observation,

P Patrol, **Q** Drone, **R** Reconnaissance, **S** Antisubmarine, **T** Trainer, **U** Utility, **V** Staff, **W** Weather.

Basic Mission A Attack, **B** Bomber, **C** Transport, **E** Special Electronic Installation, **F** Fighter, **O** Observation, **P** Patrol, **R** Reconnaissance, **S** Antisubmarine, **T** Trainer, **U** Utility, **X** Research.

Vehicle Type G Glider, **H** Helicopter, **S** Spaceplane, **V** VTOL/STOL, **Z** Lighter-than-air vehicle.

Sample aircraft mission, design, series designator

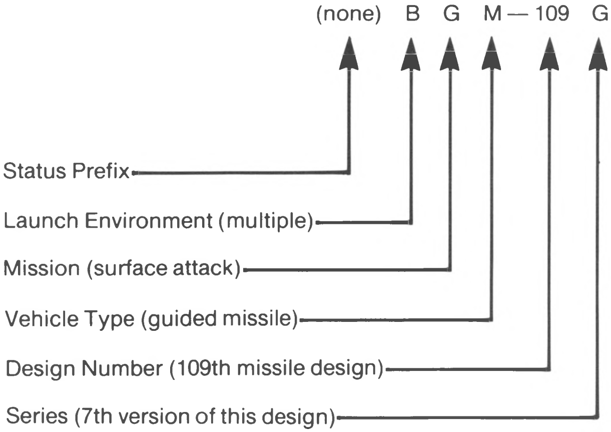

Y (none) E H — 60 B
Status Prefix (prototype)
Modified Mission
Basic Mission (electronics)
Type (helicopter)
Design Number (60th helicopter design)
Design Series (2nd version of this design)

AEROSPACE VEHICLE MDS for Guided Missiles, Rockets, and Probes The following list outlines the symbols used in guided missile, rocket, and probe MDS:

Status Prefix C Captive, **D** Dummy, **J** Special Test (temporary), **M** Maintenance, **N** Special Test (permanent), **X** Experimental, **Y** Prototype, **Z** Planning.

Launch Environment A Air, **B** Multiple, **C** Coffin, **F** Individual, **G** Runway, **H** Silo Stored, **L** Silo Launched, **M** Mobile, **P** Soft Pad, **R** Ship, **S** Space, **U** Underwater Attack.

Sample missile mission, design, series designator


(none) B G M — 109 G
Status Prefix
Launch Environment (multiple)
Mission (surface attack)
Vehicle Type (guided missile)
Design Number (109th missile design)
Series (7th version of this design)

Mission C Transport, **D** Decoy, **E** Electronic/Communications, **G** Surface Attack, **I** Aerial/Space Intercept, **L** Launch Detection/Surveillance, **M** Scientific/Calibration, **N** Navigation, **Q** Drone, **S** Space Support, **T** Training, **U** Underwater Attack, **W** Weather.

Vehicle Type B Booster, **M** Guided Missile or Drone, **N** Probe, **R** Rocket, **S** Satellite.

While other nations have basic type names, in the United States such descriptions are known as 'popular names' when attached to a general designation. The following is the current list of aircraft and missiles so described:

Popular name	Model Designation	Service
Academe	C-4A	CG
Academe	TC-4C	Navy
Aero Commander	U-9C	Army
Aero Commander	U-9D	Navy
Aero Commander	RU-9D	Army
Agile	AIM-95A	Navy
Albatross	HU-16E	CG
Apache	AH-64A	Army
Apache	YAH-64A	Army
Aquila	YMQM-105A	Army
ASROC	RUR-5A	Navy
ASROC	RUR-5B	Navy
ASROC	RUR-5C	Navy
ASROC	RUR-5D	Navy
ASROC	RUR-5E	Navy
Atlas E	SB-1A	AF
Atlas II	SB-2A	AF
Aztec	U-11A	Navy
Beaver	U-6A	AF/Army/Navy
Black Hawk	EH-60A	Army
Black Hawk	UH-60A	AF/Army
Black Hawk	YEH-60B	Army
Black Hawk	EH-60C	Army
Black Hawk	MH-60K	Army
Black Hawk	UH-60L	Army
Black Hawk	UH-60M	Army
Black Hawk	UH-60P	ROK
Black Hawk	MH-60A	Army
Bomarc	CQM-10B	AF/Navy
Bronco	OV-10A	AF/Navy
Bronco	YOV-10D	Navy
BSTS	LS-6A	DoD
Buckeye	T-2B	Navy
Buckeye	DT-2B	Navy
Buckeye	YT-2B	Navy
Buckeye	T-2C	Navy
Bulldog	AGM-83A	Navy
Bulldog	ATM-83A	Navy
Bullpup	AGM-12A	Navy
Bullpup	AGM-12B	Navy
Bullpup	AGM-12C	Navy
Bullpup Trainer	ATM-12A	Navy

Popular name	Model Designation	Service
Bullpup Trainer	ATM-12B	Navy
Cardinal	MQM-61A	Army
Caribou	C-7A	AF/Army
Caribou	YC-7A	Army
Cayuse	OH-6A	Army
Centar	SSB-8A	AF
Chaparral	MIM-72A	Army
Chaparral	MIM-72B	Army
Chaparral	MIM-72C	Army
Chaparral	XMIM-72D	Army
Chaparral	MIM-72E	Army
Chaparral	MIM-72F	Army
Chaparral	MIM-72G	Army
Chaparral	MIM-72H	Army
Chinook	CH-47A	Army
Chinook	CH-47B	Army
Chinook	CH-47C	Army
Chinook	CH-47D	Army
Chinook	MH-47D	Army
Chinook	MH-47E	Army
Cobra	AH-1G	Army/Navy
Cobra	TH-1G	Army
Cobra/TOW	AH-1E	Army
Cobra/TOW	AH-1F	Army
Cobra/TOW	AH-1P	Army
Cobra/TOW	AH-1S	Army
Cobra/TOW	TH-1S	Army
Cobra/TOW	TAH-1S	Army
Cochise	T-42A	Army
Condor	AGM-53A	Navy
Condor	AGM-53B	Navy
Corsair II	A-7A	Navy
Corsair II	NA-7A	Navy
Corsair II	A-7B	Navy
Corsair II	A-7C	Navy
Corsair II	NA-7C	Navy
Corsair II	TA-7C	Navy
Corsair II	A-7D	AF
Corsair II	YA-7D	AF
Corsair II	A-7E	Navy
Corsair II	NA-7E	Navy
Corsair II	A-7G	Navy/Swis
Corsair II	A-7K	AF
Corsair II	EA-7L	Navy
Corsair II	A-7P	Navy/Port
Corsair II	TA-7P	Navy/Port
Crusader	RF-8G	Navy
Crusader	F-8J	Navy
Crusader	F-8K	Navy
Crusader	DF-8L	Navy
Delta Dagger	QF-102A	AF
Delta Dagger	PQM-102A	AF
Delta Dagger	PQM-102B	AF
Delta Dart	QF-106A	AF
Delta Dart	YQF-106A	AF
Delta Dart	QF-106B	AF

Popular name	Model Designation	Service	Popular name	Model Designation	Service
Delta Dart	YQF-106B	AF	Fighting Falcon	YF-16A	AF
Delta II	SB-3A	AF	Fighting Falcon	F-16B	AF
DMSP 5D-2	WS-1A	DoD	Fighting Falcon	NF-16B	AF
DMSP 5D-3	WS-1B	DoD	Fighting Falcon	YF-16B	AF
DMSP 6	WS-2A	DoD	Fighting Falcon	F-16C	AF
Dolphin	HH-65A	CG	Fighting Falcon	NF-16C	AF
Dragonfly	A-37B	AF	Fighting Falcon	F-16D	AF
Dragonfly	NA-37B	AF	Fighting Falcon	NF-16D	AF
Dragonfly	OA-37B	AF	Fighting Falcon	F-16N	Navy
DSCS II	ES-4A	DoD	Fighting Falcon	TF-16N	Navy
DSCS III	ES-5A	DoD	Firebee	BQM-34A	AF
DSP	LS-3A	DoD	Firebee	MQM-34D	Army
DSP-1	LS-3B	DoD	Firebee	BQM-34E	Navy
Eagle	F-15A	AF	Firebee	BQM-34F	AF
Eagle	YF-15A	AF	Firebee	AQM-34L	AF
Eagle	F-15B	AF	Firebee	AQM-34M	AF
Eagle	NF-15B	AF	Firebee	AQM-34P	AF
Eagle	YF-15B	AF	Firebee	AQM-34R	AF
Eagle	F-15C	AF	Firebee	BQM-34S	Navy
Eagle	F-15D	AF	Firebee	BQM-34T	Navy
Eagle	F-15E	AF	Firebee	AQM-34V	AF
Extender	KC-10A	AF	Firebolt	XAQM-81A	AF
Falcon	AIM-4D	AF	Firebolt	AQM-81B	Navy
Falcon	AIM-4F	AF	Flying Classroom	T-29B	Navy
Falcon	AIM-4G	AF	Flying Classroom	T-29C	Navy
Fighting Falcon	F-16A	AF	Focus I	AGM-87A	Navy
Fighting Falcon	GF-16A	AF	Freedom Fighter	F-5A	AF
Fighting Falcon	NF-16A	AF	Freedom Fighter	F-5B	AF

Popular name	Model Designation	Service
Galaxy	C-5A	AF
Galaxy	C-5B	AF
Genie	AIR-2A	AF
Genie	AIR-2B	AF
Goshawk	T-45A	Navy
Goshawk	T-45B	Navy
GPS I	NS-7A	DoD
GPS II	NS-7B	DoD
GPS IIA	NS-7C	DoD
GPS IIR	NS-7D	DoD
Greyhound	C-2A	Navy
Griffin	BGM-109G	AF
Guardian	HU-25A	CG
Guardian	HU-25B	CG
Guardian	HU-25C	CG
Gulfstream II	C-11A	CG
Gulfstream III	C-20A	AF
Gulfstream III	C-20B	AF
Gulfstream III	C-20C	AF
Gulfstream III	C-20D	Navy
Gulfstream III	C-20E	Army
HARM	AGM-88A	AF/Navy
HARM	ATM-88A	AF/Navy
HARM	CATM-88A	AF/Navy
HARM	DATM-88A	AF/Navy
HARM	AGM-88B	AF/Navy
HARM	CATM-88B	AF/Navy
HARM	AGM-88C	Navy
HARM	CATM-88C	AF/Navy
Harpoon	AGM-84A	Navy
Harpoon	ATM-84A	Navy
Harpoon	RGM-84A	Navy
Harpoon	RTM-84A	Navy
Harpoon	UGM-84A	Navy
Harpoon	UTM-84A	Navy
Harpoon	ZAGM-84A	Navy
Harpoon	AGM-84B	Navy/UK
Harpoon	ATM-84B	Navy
Harpoon	RGM-84B	Navy
Harpoon	RTM-84B	Navy
Harpoon	UGM-84B	Navy
Harpoon	UTM-84B	Navy
Harpoon	AGM-84C	Navy
Harpoon	ATM-84C	Navy
Harpoon	RGM-84C	Navy
Harpoon	RTM-84C	Navy
Harpoon	UGM-84C	Navy
Harpoon	UTM-84C	Navy
Harpoon	AGM-84D	Navy
Harpoon	ATM-84D	Navy
Harpoon	RGM-84D	Navy
Harpoon	RTM-84D	Navy
Harpoon	UGM-84D	Navy
Harpoon	UTM-84D	Navy
Harpoon	AGM-84E	Navy
Harpoon	ATM-84E	Navy

Popular name	Model Designation	Service
Harrier	AV-8A	Navy
Harrier	TAV-8A	Navy
Harrier	AV-8B	Navy
Harrier	TAV-8B	Navy
Harrier	AV-8C	Navy
Harrier	AV-8D	Navy
Harrier	AV-8S	SP Navy
HAWK	XMIM-23A	Army
HAWK	MIM-23B	Navy/Army
HAWK	XMEM-23B	Army
HAWK	XMIM-23B	Army
HAWK	MEM-23C	Army
HAWK	MIM-23C	Army
HAWK	MEM-23D	Army
HAWK	MIM-23D	Army
HAWK	MIM-23E	Army
HAWK	MIM-23F	Army
Hawkeye	TE-2A	Navy
Hawkeye	E-2B	Navy
Hawkeye	E-2C	Navy
Hawkeye	TE-2C	Navy
Hawkeye	YE-2C	Navy
Hellfire	AGM-114A	Army
Hellfire	YAGM-114A	Army
Hellfire	AGM-114B	Navy/Marn
Hellfire	YAGM-114B	Navy
Hellfire	AGM-114C	Army
Hellfire	AGM-114D	Army
Hellfire	AGM-114E	Navy
Hellfire	AGM-114F	Army
Hellfire	AGM-114G	Army
Hercules	C-130A	AF
Hercules	AC-130A	AF
Hercules	DC-130A	AF/Navy
Hercules	NC-130A	AF
Hercules	RC-130A	AF
Hercules	C-130B	AF
Hercules	HC-130B	CG
Hercules	NC-130B	AF
Hercules	C-130D	AF
Hercules	C-130E	AF
Hercules	DC-130E	AF
Hercules	EC-130E	AF/CG
Hercules	MC-130E	AF
Hercules	NC-130E	AF
Hercules	C-130F	Navy
Hercules	KC-130F	Navy
Hercules	LC-130F	Navy
Hercules	WC-130F	AF
Hercules	EC-130G	Navy
Hercules	C-130H	AF
Hercules	AC-130H	AF
Hercules	DC-130H	AF
Hercules	EC-130H	AF
Hercules	HC-130H	AF/CG
Hercules	LC-130H	AF

Popular name	Model Designation	Service
Hercules	MC-130H	AF
Hercules	NC-130H	AF
Hercules	WC-130H	AF
Hercules	YMC-130H	AF
Hercules	C-130K	AF
Hercules	HC-130N	AF
Hercules	HC-130P	AF
Hercules	EC-130Q	Navy
Hercules	KC-130R	Navy
Hercules	LC-130R	Navy
Hercules	KC-130T	Navy
Hercules	AC-130U	AF
Honest John	MGR-1A	Army
Honest John	MGR-1B	Army
Hornet	A-18A	Navy
Hornet	FA-18A	Navy
Hornet	RFA-18A	Navy
Hornet	TFA-18A	Navy
Hornet	FA-18B	Navy
Hornet	FA-18C	Navy
Hornet	FA-18D	Navy
Hornet	F-18A	Navy
Hornet	TF-18A	Navy
Hornet	F-18L	Navy
Hound Dog	AGM-28B	AF
Huron	C-12A	AF/Army
Huron	UC-12B	Navy
Huron	C-12C	Army
Huron	C-12D	AF/Army
Huron	RC-12D	Army
Huron	C-12E	AF
Huron	C-12F	AF
Huron	RC-12F	Navy
Huron	UC-12F	Navy
Huron	RC-12G	Army
Huron	RC-12H	Army
Huron	C-12J	AF
Huron	C-12L	Army
Huron	RC-12M	Navy
Huron	UC-12M	Navy
Intruder	A-6A	Navy
Intruder	EA-6A	Navy
Intruder	JA-6A	Navy
Intruder	NA-6A	Navy
Intruder	A-6B	Navy
Intruder	A-6C	Navy
Intruder	KA-6D	Navy
Intruder	A-6E	Navy
Intruder	A-6F	Navy
Iroquois	UH-1B	Army
Iroquois	UH-1C	Army
Iroquois	UH-1D	Army
Iroquois	UH-1E	Navy
Iroquois	NUH-1E	Navy
Iroquois	TH-1F	AF
Iroquois	UH-1F	AF

Popular name	Model Designation	Service	Popular name	Model Designation	Service
Iroquois	EH-1H	Army	Maverick	CATM-65F	Navy
Iroquois	HH-1H	AF	Maverick	AGM-65G	Navy
Iroquois	UH-1H	Army/Navy	Mentor	T-34A	AF
Iroquois	HH-1K	Navy	Mentor	T-34B	Navy
Iroquois	TH-1L	Navy	Mentor	T-34C	Navy
Iroquois	UH-1L	Navy	Mentor	NT-34C	Navy
Iroquois	UH-1M	Army	Mentor	YT-34C	Navy
Iroquois	UH-1N	Navy	Mescalero	T-41A	AF
Iroquois	NUH-1N	Navy	Mescalero	T-41B	Army
Iroquois	UH-1P	AF	Mescalero	T-41C	AF
Iroquois	EH-1U	Army	Milstar	ES-8A	DoD
Iroquois	UH-1V	Army	Minuteman II	LGM-30B	AF
Ius	SSB-7A	AF	Minuteman II	LGM-30F	AF
Jet Star	C-140A	AF	Minuteman III	LGM-30G	AF
Jet Star	C-140B	AF	Mohawk	OV-1A	Army
Jolly Green Giant	HH-3E	AF	Mohawk	OV-1B	Army
Kfir C-1	F-21A	Navy	Mohawk	JOV-1B	Army
Kiowa	OH-58A	Army/Navy	Mohawk	OV-1C	Army
Kiowa	OH-58C	Army	Mohawk	JOV-1C	Army
Kiowa	OH-58D	Army	Mohawk	OV-1D	Army
Lance	MGM-52B	Army	Mohawk	JOV-1D	Army
Lance	MGM-52C	Army	Mohawk	OV-1E	Army
Liftmaster	C-118B	Navy	Mohawk	RV-1E	Army
Maverick	AGM-65A	AF	Neptune	DP-2E	Navy
Maverick	AGM-65B	AF	Neptune	DP-2H	Navy
Maverick	AGM-65D	AF	Neptune	EP-2H	Navy
Maverick	AGM-65E	Navy	Neptune	NP-2H	Navy
Maverick	AGM-65F	Navy	Neptune	SP-2H	Navy

Popular name	Model Designation	Service
Night Hawk	HH-60A	AF
Night Hawk	HH-60D	AF
Night Hawk	VH-60D	Marine
Night Hawk	HH-60E	AF
Night Hawk	VH-60N	Marine
Nightingale	C-9A	AF
Nightingale	C-9C	AF
Nike Hercules	MIM-14A	Army
Nike Hercules	MIM-14B	Army
Nike Hercules	MIM-14C	Army
Orion	P-3A	Navy
Orion	EP-3A	Navy
Orion	NP-3A	Navy
Orion	RP-3A	Navy
Orion	TP-3A	Navy
Orion	UP-3A	Navy
Orion	WP-3A	Navy
Orion	P-3B	Navy
Orion	EP-3B	Navy
Orion	P-3C	Navy
Orion	YP-3C	Navy
Orion	RP-3D	Navy
Osage	TH-55A	Army
Otter	U-1A	Army
Otter	NU-1B	Navy
Pam D II	SSB-9A	AF
Patriot	MIM-104A	Army
Patriot	XMIM-104A	Army

Popular name	Model Designation	Service
Patriot	MIM-104B	Army
Patriot	MIM-104C	Army
Pave Hawk	MH-60G	AF
Peacekeeper	LGM-118A	AF
Peacekeeper	MGM-118A	AF
Pegasus	ASB-11A	AF
Penguin	AGM-119A	AF/NATO
Penguin	AGM-119B	Navy
Pershing	XMGM-31A	Army
Phantom II	F-4B	Navy
Phantom II	QF-4B	Navy
Phantom II	RF-4B	Navy
Phantom II	F-4C	AF
Phantom II	NF-4C	AF
Phantom II	RF-4C	AF
Phantom II	NRF-4C	AF
Phantom II	F-4D	AF
Phantom II	NF-4D	AF
Phantom II	F-4E	AF/GAF
Phantom II	NF-4E	AF
Phantom II	YF-4E	AF
Phantom II	F-4G	AF
Phantom II	F-4J	Navy
Phantom II	EF-4J	Navy
Phantom II	YF-4J	Navy
Phantom II	F-4K	Navy/UK
Phantom II	F-4M	RAF
Phantom II	F-4N	Navy

Popular name	Model Designation	Service
Phantom II	F-4S	Navy
Phoenix	AEM-54A	Navy
Phoenix	AIM-54A	Navy
Phoenix	ATM-54A	Navy
Phoenix	AEM-54B	Navy
Phoenix	ATM-54B	Navy
Phoenix	AIM-54C	Navy
Phoenix	XAIM-54C	Navy
Phoenix	YAIM-54C	Navy
Polaris	UGM-27A	Navy
Polaris	UGM-27B	Navy
Polaris	UGM-27C	Navy
Provider	C-123K	AF
Provider	NC-123K	AF
Provider	UC-123K	AF
Prowler	EA-6B	Navy
Raven	EF-111A	AF
Redeye	FIM-43A	Army
Redeye	FEM-43B	Army
Redeye	FIM-43B	Army
Redeye	FEM-43C	Army
Redeye	FIM-43C	Army
Redeye	FIM-43D	Army
Regulus II	RGM-15A	Navy
Sabre	QF-86H	Navy
Sabreliner	T-39A	AF
Sabreliner	CT-39A	AF
Sabreliner	NT-39A	AF
Sabreliner	T-39B	AF
Sabreliner	T-39D	Navy
Sabreliner	CT-39E	Navy
Sabreliner	CT-39G	Navy
Samaritan	C-131B	AF
Samaritan	C-131D	AF
Samaritan	C-131E	AF
Samaritan	C-131F	Navy
Samaritan	C-131G	Navy
Samaritan	NC-131H	AF
Sea Cobra	AH-1J	Navy
Sea Cobra	AH-1T	Navy
Sea Cobra	JAH-1T	Navy
Sea Cobra	AH-1W	Navy
Sea Hawk	SH-60B	Navy
Sea Hawk	YSH-60B	Navy
Sea Hawk	SH-60F	Navy
Sea Hawk	HH-60H	Navy
Sea Hawk	HH-60J	Navy
Sea King	HH-3A	Navy
Sea King	SH-3A	Navy
Sea King	UH-3A	Navy
Sea King	NSH-3A	Navy
Sea King	CH-3B	Navy
Sea King	SH-3D	Navy
Sea King	CH-3E	AF
Sea King	HH-3F	CG
Sea King	SH-3G	Navy

Popular name	Model Designation	Service
Sea King	SH-3H	Navy
Sea King	YSH-3J	Navy
Sea Knight	CH-46A	Navy
Sea Knight	HH-46A	Navy
Sea Knight	UH-46A	Navy
Sea Knight	NCH-46A	Navy
Sea Knight	CH-46D	Navy
Sea Knight	UH-46D	Navy
Sea Knight	CH-46E	Navy
Sea Knight	CH-46F	Navy
Sea Ranger	TH-57A	Navy
Sea Ranger	TH-57B	Navy
Sea Ranger	TH-57C	Navy
Sea Sparrow	AIM-7D	Navy
Sea Sparrow	AIM-7E	Navy
Sea Sparrow	ATM-7E	Navy
Sea Sparrow	RIM-7F	Navy
Sea Sparrow	YRIM-7F	Navy
Sea Sparrow	RIM-7H	Navy
Sea Sparrow	YRIM-7H	Navy
Sea Sparrow	RIM-7M	Navy
Sea Stallion	CH-53A	Navy
Sea Stallion	CH-53D	Navy
Sea Stallion	RH-53D	Navy
Sea Stallion	NRH-53D	Navy
Seasprite	UH-2C	Navy
Seasprite	HH-2D	Navy
Seasprite	SH-2D	Navy
Seasprite	YSH-2E	Navy
Seasprite	SH-2F	Navy
Seasprite	SH-2G	Navy
Seasprite	YSH-2G	Navy
Seminole	U-8D	Army
Seminole	RU-8D	Army
Seminole	NU-8E	Army
Seminole	U-8F	Army
Seminole	U-8G	Army
Sentry	E-3A	AF
Sentry	KE-3A	Saudi
Sentry	E-3B	AF
Sentry	E-3C	AF
Sentry	JE-3C	AF
Sentry	E-3D	AF
Sergeant	MGM-29A	Army
Shillelagh	MGM-51A	Army
Shillelagh	MIM-51A	Army
Shillelagh	MGM-51B	Army
Shillelagh	MIM-51B	Army
Shillelagh	MGM-51C	Army
Shillelagh	MIM-51C	Army
Shrike	AGM-45A	AF/Navy
Shrike	AGM-45B	AF/Navy
Shrike	ATM-45B	AF/Navy
Sidewinder	AIM-9B	Navy
Sidewinder	AIM-9D	Navy
Sidewinder	ATM-9D	Navy

Popular name	Model Designation	Service	Popular name	Model Designation	Service
Sidewinder	AIM-9E	AF	Skyraider	EA-1E	Navy
Sidewinder	AIM-9G	Navy	Skytrain	C-117D	Navy
Sidewinder	ATM-9G	Navy	Skytrain	NC-117D	Navy
Sidewinder	AIM-9H	Navy	Skytrain	TC-117D	Navy
Sidewinder	AIM-9J	AF	Skytrain II	C-9B	Navy
Sidewinder	ZAIM-9K	Navy	Skywarrior	A-3A	Navy
Sidewinder	AIM-9L	AF/Navy	Skywarrior	NA-3A	Navy
Sidewinder	AIM-9M	AF/Navy	Skywarrior	A-3B	Navy
Sidewinder	AIM-9N	AF	Skywarrior	EA-3B	Navy
Sidewinder	AIM-9P	AF	Skywarrior	KA-3B	Navy
Sidewinder	AIM-9Q	Navy	Skywarrior	NA-3B	Navy
Sidewinder	AIM-9R	Navy	Skywarrior	RA-3B	Navy
Sidewinder	AIM-9S	Navy	Skywarrior	TA-3B	Navy
Skyhawk	TA-4B	Navy	Skywarrior	UA-3B	Navy
Skyhawk	A-4C	Navy	Skywarrior	EKA-3B	Navy
Skyhawk	A-4E	Navy	Skywarrior	ERA-3B	Navy
Skyhawk	NA-4E	Navy	Skywarrior	NRA-3B	Navy
Skyhawk	A-4F	Navy	Smokey Sam	GTR-18A	Navy
Skyhawk	EA-4F	Navy	Sparrow	CAEM-7E	AF/Navy
Skyhawk	NA-4F	Navy	Sparrow	CATM-7E	AF/Navy
Skyhawk	TA-4F	Navy	Sparrow	DATM-7E	Navy
Skyhawk	NTA-4F	Navy	Sparrow	AIM-7F	AF/Navy
Skyhawk	TA-4J	Navy	Sparrow	ATM-7F	AF/Navy
Skyhawk	NTA-4J	Navy	Sparrow	CAEM-7F	AF/Navy
Skyhawk	A-4L	Navy	Sparrow	CATM-7F	AF/Navy
Skyhawk	A-4M	Navy	Sparrow	DATM-7F	AF/Navy
Skyhawk	NA-4M	Navy	Sparrow	AIM-7M	AF/Navy
Skyhawk	OA-4M	Navy	Sparrow	ATM-7M	AF/Navy

Popular name	Model Designation	Service
Sparrow	CAEM-7M	AF/Navy
Sparrow	CATM-7M	AF/Navy
Sparrow	DATM-7M	AF/Navy
Sparrow	AIM-7N	Navy
Sparrow	AIM-7P	Navy
Sparrow	RIM-7P	Navy
Sparrow	AIM-7R	Navy
Sparrow	RIM-7R	Navy
SRAM	AGM-69A	AF
SRAM	AGM-69B	AF
SSTS	LS-9A	DoD
Standard	YRIM-66A	Navy
Standard	RIM-66B	Navy
Standard	RIM-66C	Navy
Standard	RGM-66D	Navy
Standard	RTM-66D	Navy
Standard	RGM-66E	Navy
Standard	RIM-66E	Navy
Standard	RIM-66G	Navy
Standard	RIM-66H	Navy
Standard	RIM-66J	Navy
Standard	RIM-66K	Navy
Standard	RIM-66L	Navy
Standard	RIM-66M	Navy
Standard	YRIM-67A	Navy
Standard	RIM-67B	Navy
Standard	RIM-67C	Navy
Standard	RIM-67D	Navy
Standard Arm	AGM-78A	Navy
Standard Arm	ATM-78A	Navy
Standard Arm	AGM-78B	Navy
Standard Arm	ATM-78B	Navy
Standard Arm	AGM-78C	AF/Navy
Standard Arm	ATM-78C	AF/Navy
Standard Arm	AGM-78D	AF/Navy
Standard Arm	ATM-78D	Navy
Starfighter	F-104G	AF
Starfighter	TF-104G	AF
Starlifter	C-141A	AF
Starlifter	NC-141A	AF
Starlifter	C-141B	AF
Stinger	FIM-92A	Army
Stinger	XFIM-92B	Army
Stinger	FIM-92C	Army
Stratofortress	NB-52A	AF
Stratofortress	NB-52B	AF
Stratofortress	B-52C	AF
Stratofortress	B-52D	AF
Stratofortress	NB-52D	AF
Stratofortress	B-52E	AF
Stratofortress	NB-52E	AF
Stratofortress	B-52F	AF
Stratofortress	B-52G	AF
Stratofortress	B-52H	AF
Stratojet	EB-47E	Navy
Stratojet	NB-47E	Navy

Popular name	Model Designation	Service
Stratolifter	C-135A	AF
Stratolifter	EC-135A	AF
Stratolifter	NC-135A	AF
Stratolifter	C-135B	AF
Stratolifter	EC-135B	AF
Stratolifter	WC-135B	AF
Stratolifter	C-135C	AF
Stratolifter	EC-135C	AF
Stratolifter	C-135E	AF
Stratolifter	EC-135E	AF
Stratolifter	RC-135E	AF
Stratolifter	C-135F	France
Stratolifter	EC-135G	AF
Stratolifter	EC-135H	AF
Stratolifter	EC-135J	AF
Stratolifter	EC-135K	AF
Stratolifter	EC-135L	AF
Stratolifter	RC-135M	AF
Stratolifter	C-135N	AF
Stratolifter	EC-135N	AF
Stratolifter	EC-135P	AF
Stratolifter	RC-135S	AF
Stratolifter	TC-135S	AF
Stratolifter	RC-135U	AF
Stratolifter	RC-135V	AF
Stratolifter	RC-135W	AF
Stratolifter	TC-135W	AF
Stratolifter	RC-135X	AF

Popular name	Model Designation	Service
Stratolifter	EC-135Y	AF
Stratoliner	C-137B	AF
Stratoliner	C-137C	AF
Stratotanker	KC-135A	AF
Stratotanker	NKC-135A	AF
Stratotanker	KC-135D	AF
Stratotanker	KC-135E	AF
Stratotanker	NKC-135E	AF
Stratotanker	KC-135Q	AF
Stratotanker	KC-135R	AF
Stratotanker	KC-135T	AF
Streaker	MQM-107A	Army
Streaker	MQM-107B	AF
Streaker	MQM-107C	AF
Streaker	MQM-107D	AF/Army
Streaker	MQM-107E	AF/Army
Subroc	UUM-44A	Navy
Super Jolly	HH-53B	AF
Super Jolly	CH-53C	AF
Super Jolly	HH-53C	AF
Super Sabre	F-100D	AF
Super Sabre	QF-100D	AF
Super Sabre	YQF-100D	AF
Super Sabre	F-100F	AF
Super Sabre	QF-100F	AF
Super Stallion	CH-53E	Navy
Super Stallion	JCH-53E	Navy
Super Stallion	YCH-53E	Navy

Popular name	Model Designation	Service
Talon	T-38A	AF/NV/GAF
Talon	NT-38A	AF/NV/GAF
Talon	QT-38A	AF/NV/GAF
Talon	AT-38B	AF
Talos	RGM-8H	Navy
Talos	RIM-8H	Navy
Tarhe	CH-54A	Army
Tarhe	CH-54B	Army
Tartar	RIM-24A	Navy
Tartar	RIM-24B	Navy
Tartar	RIM-24C	Navy
Terrier	RIM-2A	Navy
Terrier	RIM-2B	Navy
Terrier	RIM-2C	Navy
Terrier	RIM-2D	Navy
Terrier	RIM-2E	Navy
Terrier	RIM-2F	Navy
Thunderbolt	A-10A	AF
Thunderbolt	YA-10A	AF
Thunderbolt	A-10B	AF
Thunderbolt	YA-10B	AF
Tiger II	F-5E	AF
Tiger II	RF-5E	AF
Tiger II	F-5F	AF
Titan 34D	SB-6A	AF
Titan II	SB-4A	AF
Titan II	LGM-25C	AF
Titan IV	SB-5A	AF

Popular name	Model Designation	Service
Tomahawk	BGM-109A	Navy
Tomahawk	BGM-109B	AF
Tomahawk	BGM-109C	Navy
Tomahawk	AGM-109H	AF
Tomahawk	AGM-109K	AF
Tomahawk	AGM-109L	Navy
Tomcat	F-14A	Navy
Tomcat	F-14B	Navy
Tomcat	F-14C	Navy
Tow	BGM-71A	Army
Tow	BTM-71A	Army
Tow	BGM-71B	Army
Tow	BTM-71B	Army
Tow	BGM-71C	Army
Tow	BGM-71D	Army
Tow	BGM-71E	Army
Tow	BGM-71F	Army
Tow	BGM-71G	Army
Tracer	E-1B	Navy
Tracker	TS-2A	Navy
Tracker	US-2A	Navy
Tracker	US-2B	Navy
Tracker	US-2C	Navy
Tracker	S-2D	Navy
Tracker	ES-2D	Navy
Tracker	US-2D	Navy
Tracker	S-2E	Navy
Tracker	S-2G	Navy

Popular name	Model Designation	Service
Tracker	YS-2G	Navy
Trader	C-1A	Navy
Transtage	SSB-10A	AF
Trident	UGM-96A	Navy
Trident II	UGM-133A	Navy
Trojan	T-28B	Navy
Trojan	T-28C	Navy
Tweet	T-37B	AF/GAF
Twin Otter	UV-18A	Army
Twin Otter	UV-18B	AF
Typhon (MR)	RIM-55A	Navy
US Roland	XMIM-115A	Army
UTE	U-21A	Army
UTE	RU-21A	Army
UTE	RU-21B	Army
UTE	RU-21C	Army
UTE	RU-21D	Army
UTE	RU-21E	Army
UTE	U-21F	Army
UTE	U-21G	Army
UTE	RU-21H	Army
UTE	U-21J	Army
UTE	RU-21J	Army
Vigilante	RA-5C	Navy
Viking	S-3A	Navy
Viking	KS-3A	Navy
Viking	NS-3A	Navy
Viking	US-3A	Navy
Viking	S-3B	Navy
Viper	XFGR-17A	Army
Warning Star	EC-121K	Navy
Warning Star	NC-121K	Navy
Weapon Alpha	RUR-4A	Navy
Zap	XAGR-14A	Navy

COMMONWEALTH OF INDEPENDENT STATES

The break-up of the Soviet Union has led to the creation of a number of new states within the CIS. Only two are known to have major design bureaux, Russia and the Ukraine, the latter with the Antonov Bureau. When Soviet security was strictly maintained, many aircraft designations and designs were difficult to confirm

For this reason, the North Atlantic Treaty Organisation countries evolved a code-name system for former Soviet aircraft. This has been very widely adopted but in the new era of relaxed tension the NATO system does not seem to be continued across the board and may even, ultimately, go out of use for later types. So aircraft, particularly civil, are appearing without a code-name and the amusing situation has developed where Russian designers often refer to their own products by their original NATO code-names rather than the Russian designation.

The current CIS design bureaux are:

An	Antonov
Be	Beriev
Il	Ilyushin
Ka	Kamov
Mi	Mil
MiG	Mikoyan (originally with Gurevich)
Mya	Myasishchev
Su	Sukhoi
Tu	Tupolev
Yak	Yakovlev

Code names are allotted by NATO on the basis of function:

B	Bomber
C	Cargo/transport
F	Fighter/ground attack
H	Helicopter
M	Trainer, flying boat and maritime reconnaissance.

The code-names, together with CIS designations for current types, are as follows:

Code-name	**Designation**	**Description**
Backfire	Tu-22M	Variable-geometry bomber
Badger	Tu-16	Twinjet bomber
Beagle	Il-28	Twinjet bomber
Bear	Tu-95/Tu-142	Turboprop bomber
Blackjack	Tu-160	V-g bomber; four-jet replacement for 'Bear'
Blinder	Tu-22	Rear-jet bomber
Brewer	Yak-28	Strike/attack
Cab	Li-2	Russian-built DC-3
Camber	Il-86	Wide-bodied jet transport
Camel	Tu-104	Twinjet transport
Camp	An-8	Twin-turboprop transport
Candid	Il-76	Four-jet transport
Careless	Tu-154	Rear trijet transport
Cash	An-28	Turboprop version of 'Clod'
Cat	An-10	Four-turboprop transport
Clank	An-30	Survey version of 'Coke'
Classic	Il-62	Rear four-jet airliner
Cleat	Tu-114	Turboprop transport version of 'Bear'
Cline	An-32	Overwing turboprop version of 'Curl'
Clobber	Yak-42	Enlarged version of 'Codling'
Clod	An-14	Light piston twin
Coach	Il-12	Piston twin
Coaler	An-72	STOL replacement for 'Curl'
Cock	An-22	Four-turboprop heavy transport
Codling	Yak-40	Trijet light transport
Coke	An-24	Twin-turboprop transport
Colt	An-2	Biplane
Condor	An-124	Very large four-engined transport similar to US Galaxy

Code-name	Designation	Description
Cookpot	Tu-124	Smaller 'Camel'
Coot	Il-18	Four-turboprop airliner
Cossack	An-225	Very large six-engined transport
Crate	Il-14	Developed 'Coach'
Creek	Yak-12	Light aircraft
Crusty	Tu-134	Rear twinjet version of 'Cookpot'
Cub	An-12	Four-turboprop transport
Cuff	Be-30	Light STOL transport
Curl	An-26	Rear-door variant of 'Coke'
Fagot	MiG-15	First swept-wing Soviet fighter in service
Farmer	MiG-19	Supersonic fighter
Fencer	Su-24	V-g bomber, same class as US F-111
Fiddler	Tu-28P	Swept-wing all-weather fighter
Firebar	Yak-28P	All-weather version of 'Brewer'
Fishbed	MiG-21	Multi-variant delta fighter
Fishpot-B/C	Su-9/11	All-weather delta fighter; Su-11 lengthened
Fitter-A	Su-7B	Swept-wing ground attack fighter
Fitter-C/D	Su-17/20/22	V-g fighter
Flagon	Su-15	Supersonic delta fighter
Flanker	Su-27	Twin jet single-seater comparable to US F-15
Flipper	—	Experimental fighter
Flogger	MiG-23/27	V-g fighter/bomber; various versions
Forger	Yak-38	Supersonic VTOL carrier fighter

Code-name	Designation	Description
Foxbat	MiG-25	Supersonic interceptor
Foxhound	MiG-31	Development of 'Foxbat'
Freestyle	Yak-41	V/STOL carrier-borne aircraft
Fresco	MiG-17	Fighter; development of 'Fagot'
Frogfoot	Su-25	Twin jet ground attack aircraft
Fulcrum	MiG-29	Twin jet similar to US F-14
Halo	Mi-26	Heavy helicopter
Hare	Mi-1	Light helicopter
Harke	Mi-10	Crane variant of 'Hook'
Havoc	Mi-28	Attack helicopter, similar to US Apache
Haze	Mi-14	Naval variant of 'Hip'
Helix	Ka-27/28/29	Development of 'Hormone'
Hen	Ka-15	Light helicopter
Hermit	Mi-34	Sport and Training helicopter
Hind	Mi-24/25	Attack helicopter
Hip	Mi-8	Military/civil helicopter
Hog	Ka-18	Development of 'Hen'
Hokum	Kamov Ka-50	New Kamov co-axial rotor combat helicopter
Hoodlum	Ka-26	General-purpose helicopter
Hook	Mi-6	Heavy military/civil helicopter
Hoplite	Mi-2	Small turbine helicopter
Hormone	Ka-25	Naval helicopter
Hound	Mi-4	Military/civil helicopter
Madcap	An-74	An-72 'Coaler' with fin radome
Madge	Be-6	Flying boat

Code-name	Designation	Description
Maestro	Yak-28U	Trainer version of 'Firebar'/ 'Brewer'
Maiden	Su-11U	Two-seater variant of 'Fishpot'
Mail	Be-12	Turboprop maritime amphibian
Mainstay	Il-76	AWACS version of 'Candid'
Magnum	Yak-30	Aerobatic jet aircraft
Mandrake	—	High-altitude reconnaissance aircraft
Mangrove	Yak-27	Reconnaissance
Mantis	Yak-32	Jet trainer
Mascot	Il-28U	Trainer variant of 'Beagle'
Max	Yak-18	Club trainer and sporting aircraft
May	Il-38	Maritime reconnaissance version of 'Coot'
Maya	L-29	Delphin trainer
Mermaid	Be-42	Large twin-jet amphibian
Midas	Il-78	Tanker version of 'Candid'
Midget	MiG-15UTI	Trainer variant of 'Fagot'
Mongol	MiG-21U	MiG-21 trainer
Moose	Yak-11	Trainer
Moss	Tu-126	Airborne early warning aircraft
Moujik	Su-7U	Trainer variant of 'Fitter A'
Mule	Po-2	Utility biplane

CANADA MILITARY

The Canadian system of military designations is similar to that of the United States. The system employs four terms, as follows:

a. **Type Designation.** This term means a two-letter prefix followed by the three-digit number assigned to each aircraft type. These three digits are the first three digits of the five or six digits that comprise the aircraft's registration or serial number. The three type designation digits commence at 100 and each aircraft type number is prefixed by 'C' for Canadian followed by the basic mission symbol (F, T, C, P or H – see subparagraph b).

b. **Basic Mission Symbol.** This term means the letter used to indicate the basic, original function of the aircraft coded as follows: F-Fighter; T-Trainer; C-Cargo/Transport; P-Patrol/ Reconnaissance/Anti-Submarine Warfare; H-Helicopter.

c. **Suffix Letter.** This term means a model change or modification to the basic aircraft where such change significantly alters the aircraft's function or capability. Suffix letters, when assigned, are allotted in consecutive order commencing with the letter A. To avoid confusion, the letters I and O are not used and the letter D is reserved for dual-seat versions of single-seat aircraft. The suffix letter, when applicable, comes directly after the type designation, without space or punctuation.

d. **Popular Name.** This term means a descriptive word name (eg, Sea King, Buffalo).

Canadian designation	Canadian service name
CC-109	Cosmopolitan
CH-113	Labrador
CH-113A	Labrador
CT-114	Tutor
CC-115	Buffalo
CF-116	CF-5
CE-117	Falcon EW
CH-118	Iroquois
CH-124	Sea King
CC-130	Hercules
CT-133	Silver Star
CT-134	Musketeer II
CH-135	Twin-Huey
CH-136	Kiowa
CC-137	Boeing 707
CC-138	Twin Otter
CH-139	Kiowa III
CP-140	Aurora
CP-140A	Arcturus
CC-142	Dash-8
CT-142	Dash 8M Nav Trainer
CH-143	BK117
CC-144A	Challenger 600
CC-144B	Challenger 601
CE-144	Challenger EW
CT-145	Super King Air
CH-147	Chinook
CF-188	CF-18

CHINA

The People's Republic of China (PRC) has adopted a system of designation which involves in Western terms: (1) the abbreviation of the company which produces the aircraft or helicopter; (2) the function either in full or as an abbreviation, plus the number in a design series which appears to start in most cases at –5.

The system is complicated by the fact that machines with possible export potential carry a 'westernised' function letter in place of the full or abbreviated Chinese function word.

A typical example is the NANCHANG Quiangjiji or Quiang 5 which has a westernised designation of A (A = Attack) –5.

The manufacturers' or National Aircraft Factories' abbreviations are:

Manufacturers	Abbreviation
Chengdu Aircraft Corporation	CAC
Changhe Aircraft Factory	CAF
Guizhou Aviation Industry Corporation	GAIC
Guangzhou Orlando Helicopters Ltd	GOHL
Harbin Aircraft Manufacturing Corporation	HAMC
Nanchang Aircraft Manufacturing Company	NAMC
Shenyang Aircraft Corporation	SAC
Shanghai Aircraft Manufacturing Factory	SAMF
Shijiazhuang Aircraft Plant	SAP
Xian Aircraft Manufacturing Company	XAMC

Function designations are as follows with, where allocated, westernised function letters:

Chinese function designation	Function	Westernised function letter
Jianjiji	Fighter aircraft	F
Jianjiji Jiaolianji or Jianjiao	Fighter trainer	FT
Suishang Hongzhaji or Suihong	Maritime bomber (patrol seaplane)	PS
Zhishengji or Zhi	Vertical take-off aircraft (helicopter)	
Yunshuji or Yun	Transport aircraft	None with Westernised 'C' designation
Qiangjiji or Qiang	Attack aircraft	A
Chuji Jiaolianji or Chujiao	Basic training aircraft	PT
Hongzhaji or Hong	Bomber	B

UNITED KINGDOM MILITARY

The UK service system of aircraft designations is the reverse of that employed in the United States in that the type name is the primary reference and role letters and mark number follow.

Role letters used by the three services are:

AEW	Airborne Early Warning
AH	Army Helicopter
AL	Army Liaison
AS	Anti-submarine
B	Bomber
B(I)	Bomber/Interdictor
B(K)	Bomber (Tanker)
B(PR)	Bomber (Photo-reconnaissance)
C	Transport
CC	Transport and Communications
D	Drone or unmanned aircraft
E	Electronic/Flight Checking
F	Fighter
FGA	Fighter Ground Attack
FGR	Fighter Ground Attack Reconnaissance
FR	Fighter Reconnaissance
FRS	Fighter Reconnaissance Strike
GA	Ground Attack
GR	Ground Attack Reconnaissance
HAR	Helicopter, Air Rescue
HAS	Helicopter, Anti-submarine
HC	Helicopter, Cargo
HT	Helicopter, Training
HU	Helicopter, Utility

K	Tanker
MR	Maritime Reconnaissance
R	Reconnaissance
O	Observation
PR	Photographic Reconnaissance
R	Reconnaissance
S	Strike
T	Trainer
TT	Target Towing
TX	Training Glider
W	Weather

Typical examples are Scout AH1 (Army Helicopter Mk 1), Harrier GR3 (Ground Attack Reconnaissance Mk 3) and Sea King AEW2 Airborne Early Warning Mk 2.

Aircraft and helicopter designations current in use are as follows:

Designation	**Operator**	**Notes**
A 109A	Army	Italian helicopter
Andover		
C1	MoD (PE)	Freighter
CC2	RAF	Passenger
E3	MoD (PE)	Flight checking
BAe 125		
CC1/1A	RAF/RN	BAe 125-400
CC2/2A	RAF	BAe 125-600
CC3	RAF	BAe 125-700
600	MoD (PE)	Trials
Buccaneer		
S2	RAF	Strike
Bulldog		
T1	RAF	Primary trainer
Canberra		
B2	RAF/RN	Still in use
PR3	MoD	One only
T4	RAF & RN	B2 trainer
B6	RAF	One only
PR7	RAF	Improved PR3
B(I)8	MoD	One only
PR9	RAF	In service
D10	MoD	Unmanned target
D14	MoD	Version of D10
B15	RAF	B6 sold abroad
E15	RAF	Flight checking
B16	MoD	Modified B15
T17	RAF	Special B2
T18	RAF/RN	Target-tug conversion
T19	RAF	T11 conversion
T22	RN	With Buccaneer nose radar
B52	Ethiopia	As B2
T54	India	As T4
B(I)56	Peru	As B6
PR57	India	As PR7
B(I)58	India	As B(I)8
B62	Argentina	As B2
T64	Argentina	As T4
B66	India	As B15/B16

Designation	Operator	Notes
PR67	India	PR7 conversion
T67	India	PR67 conversion
B(I)68	India	B(I)8 conversion
B72	Peru	B2 conversion
T74	Peru	T4 conversion
B(I)78	Peru	B(I)8 conversion
B82	Venezuela	B2 conversion
B(I)82	Venezuela	B2 conversion
PR83	Venezuela	PR3 conversion
T84	Venezuela	T4 conversion
B(I)88	Venezuela	B(I)8 conversion
Chinook		
HC1	RAF	US CH-47
HC2	RAF	Mid-life update
Chipmunk		
T10	RAF/Army/ RN	British-built trainer
Mks 21-23	Civil	
Comet 4C	MoD (PE)	2 only
Commando Mk 1	Egypt	Transport adapted from Sea King
Mk 2B	Egypt/Saudi Arabia/Qatar	Transport/EW
Dakota C3	MoD (PE)	One
Dominie		
T1	RAF	BAe 125 military trainer
Gazelle		
AH1	Army & RM	Gazelle B

Designation	Operator	Notes
HT2	RN	Gazelle C
HT3	RAF	Gazelle D
HCC4	RAF	Gazelle E
Grasshopper TX1	CCF	Glider
Harrier		
GR3	RAF	Pegasus 103 engine Also GR3A and GR3C
T4/4A	RAF	Two-seater
T4N	RN	Two-seater
GR5	RAF	AV-8B Harrier II
T6	RAF	Modified T4
GR7	RAF	Modified GR5
T8	RN	Updated T4
T10	RAF	14 ordered
Mk 51	US Marines	AV-8A
Mk 52	BAe	T4, company-owned
Mk 54	US Marines	T4
Mk 55	Spanish Navy	Known as Matador/AV-8S
Mk 58	Spanish Navy	TAV-8S
T60	Indian Navy	Two-seater
Harvard		
T2B	MoD	Two only
Hawk		
T1	RAF	Trainer
T1A	RAF	With armament
Mk 50	BAe	Demonstrator

Designation	Operator	Notes
Mk 51	Finland	Trainer
Mk 52	Kenya	Trainer/ground attack
Mk 53	Indonesia	Trainer/ground attack
Mk 60	Zimbabwe	Trainer/ground attack
Mk 61	Dubai	Trainer/ground attack
Mk 63	Abu Dhabi	Trainer/ground attack
Mk 64	Kuwait	Trainer/ground attack
Mk 65	Saudi Arabia	Trainer/ground attack
Mk 66	South Korea/ Switzerland	Trainer/ground attack
100	BAe	Demonstrator
200	BAe	Demonstrator, single seat
Hercules		
C1	RAF	C-130K transport
CIK	RAF	Tanker
CIP	RAF	Probe
W2	RAF	Meteorological conversion
C3	RAF	Stretched fuselage
Heron		
C4	RN	Light transport
Hunter		
T7	RAF	Two-seat trainer
T7A	MoD (PE)	T7 modified
T8	RN	T7 for Navy
T8A	RN	C standard
T8M	RN	Sea Harrier radar trainer
FGA9	MoD (PE)	F6 with increased weapon load
GA11	RN	Naval
PR 11	RN	One only

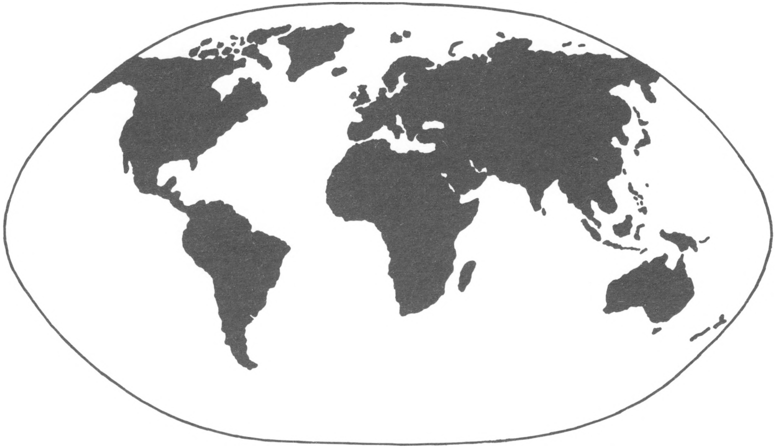
Designation	Operator	Notes
F52	Peru	Export
FGA56	India	F6 for ground attack
F58	Switzerland	F6
FGA59	Iraq	FGA9
T62	Peru	One only, F4
T66	India	T7 with modified armament
T66C	Lebanon	
T68	Switzerland	
T69	Iraq	Two-seat version of FGA59
T70	Lebanon	T7
FGA71	Chile	FGA9
T72	Chile	T7
FGA74	Singapore	FGA9
FR74A	Singapore	PR version of FGA9
T75	Singapore	T7
FGA76	Abu Dhabi	FGA9
FR76A	Abu Dhabi	PR version of FGA9
T77	Abu Dhabi	T7
FGA78	Qatar	FGA9
T79	Qatar	T7
FGA 80	Zimbabwe	FGA9
T81	Zimbabwe	As T7
Islander		
AL1	Army	Beaver replacement
Jaguar		
GR1	RAF	Strike
T2	RAF	Two-seat trainer
Janus C		
TX1	RAF	Advanced gliding

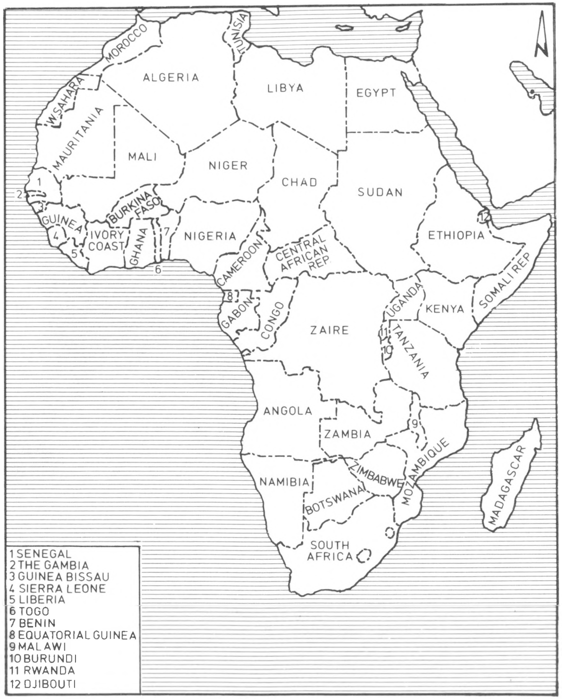
Designation	Operator	Notes
Jet Provost		
T3A	RAF	Modified avionics
T5	RAF	Pressurised
T5A	RAF	Modified avionics
T51—55	Various	Export versions
Jetstream		
T1	RAF	Twin trainer
T2	RAF/RN	Modified
T3	RN	Radar under fuselage-trainer
Lightning		
F6	MoD (PE)	Small number
Lynx		
AH1	Army	WG13
HAS2	RN	ASW equipment
HAS3	RN	Update
HAS4	French Navy	Uprated engines
AH5	MoD (PE)	Development
AH7	Army	
HAS8	RN	Update
AH9	Army	(wheels)
Mk 21	Brazilian Navy	
Mk 23	Argentine Navy	
Mk 25	Royal Netherlands Navy	Dutch UH-14A
Mk 27	Royal Netherlands Navy	Dutch SH-14B
Mk 28	State of Qatar	
Mk 80	Denmark	
Mk 81	Netherlands	Dutch SH-14C
Mk 86	Norway	
Mk 88	Germany	
Mk 89	Nigerian Navy	
Mk 90	Denmark	Engine mod
95	Portugal	Super Lynx
99	South Korea	Super Lynx
Meteor		
T7	RAF/MoD	Few
D16	MoD (PE)	Two only
Nimrod		
R1	RAF	Three for special EW work
MR2	RAF	Maritime reconnaissance
MR2P	RAF	With probe
Pembroke		
C1	RAF	Transport
C(PR)1	RAF	C1 photographic
Phantom		
FG1	RAF	McDonnell Douglas F-4K
FGR2	RAF	McDonnell Douglas F-4M
Puma		
HC1	RAF	As French SA330
Scout		
AH1	Army	As Wasp
Sea Harrier		
FRS1	RN	Naval Harrier, nose radar

Designation	Operator	Notes
FRS2	RN	Updated FRS1
Mk 51	Indian Navy	Nose radar
Sea Heron		
C2	RN	Transport
Sea King		
AEW2	RN	Airborne early warning
HAR3	RAF	Rescue
HAS5	RN	Updated
HAS6	RN	Advanced ASW
HC4	RN	Commando Mk2
Mk 6	MoD (PE)	Trials
Mk 4X	MoD (PE)	Trials
Mk 41	Germany	
Mk 42/42B/42C	India	
Mk 43	Norway	
Mk 45	Pakistan Navy	
Mk 47	Egyptian Navy	
Mk 48	Belgium	
Mk 50	Australia	
Sea Vixen		
D3	MoD (PE)	Unmanned target version
Strikemaster		
Mk 80	Saudi Arabia	
Mk 81	Yemen	
Mk 82	Muscat&Oman	
Mk 83	Kuwait	Similar to armed Jet Provost 5
Mk 84	Singapore	
Mk 87	Kenya	
Mk 88	New Zealand	
Mk 89	Ecuador	
Tornado		
GR1	RAF	Interdiction/strike version
GR1A	RAF	Reconnaissance version
GR4	RAF	After mid-life update
F2	RAF	Air-defence variant
F3	RAF	Air-defence variant
Tristar		
K1	RAF	Tanker/passenger transport
KC1	RAF	Tanker/freighter
C2	RAF	ex Pan Am
C2K	RAF	C2 with underwing refuelling pods
Tucano		
T1	RAF	Trainer
T51	Kenya	
T52	Kuwait	
Vanguard		
TX1	RAF	Sailplane
VC10		
C1	RAF	Long-range transport
C1K	RAF	Passenger/tanker
K2	RAF	Converted Standard VC10
K3	RAF	Converted Super VC10
K4	RAF	Update
Victor		
K2	RAF	Tanker

Designation	Operator	Notes
Wasp		
HAS1	Export	Naval Scout AH1 (wheels)
Wessex		
HC2	RAF	Single exhaust stub
HCC4	RAF	Queen's Flight
HU5	RN & RM	Commando-carrier version
HU5C	RAF	Used in Cyprus

The following pages contain maps of the World, together with lists of the nation's combat aircraft. The word 'combat' is taken to include not only fighters and bombers but also ASW/MR and AEW aircraft, trainers used for attack and counter-insurgency purposes and helicopters equipped as gun ships or for battlefield close support, counter-insurgency and anti-submarine warfare. Where some countries are not referred to, it means they have no known armed combat aircraft.




MOROCCO
TUNISIA
ALGERIA
LIBYA
EGYPT
W.SAHARA
MAURITANIA
MALI
NIGER
CHAD
SUDAN
BURKINA FASO
GUINEA
IVORY COAST
GHANA
NIGERIA
CAMEROON
CENTRAL AFRICAN REP
ETHIOPIA
SOMALI REP
KENYA
UGANDA
GABON
CONGO
ZAIRE
TANZANIA
ANGOLA
ZAMBIA
MOZAMBIQUE
MADAGASCAR
NAMIBIA
ZIMBABWE
BOTSWANA
SOUTH AFRICA
1 SENEGAL
2 THE GAMBIA
3 GUINEA BISSAU
4 SIERRA LEONE
5 LIBERIA
6 TOGO
7 BENIN
8 EQUATORIAL GUINEA
9 MALAWI
10 BURUNDI
11 RWANDA
12 DJIBOUTI

Algeria
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
MiG-25 'Foxbat'
Su-7/Su-20 'Fitter'
Mi-25 'Hind' (Mi-25 denotes export version)

Angola
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-22 'Fitter'
Mi-8/Mi-17 'Hip'
Mi-25 'Hind'
Gazelle
SA.365M Dauphin 2
Alouette III

Botswana
Strikemaster
Defender
PC-7

Burkina Faso
MiG-21 'Fishbed'
SF.260 Warrior

Burundi
SF.260 Warrior
SA 342 Gazelle

Cameroon
Alpha Jet
CM.170 Magister
Gazelle

Congo
MiG-17 'Fresco'
MiG-21 'Fishbed'

Djibouti
Mirage F1
(French Air Force)

Egypt
F-16
Mirage 2000
Mirage 5
Phantom
MiG-19 'Farmer'
MiG-21 'Fishbed'
Alpha Jet
Tu-16 'Badger'
Il-28 'Beagle'
E-2C Hawkeye
SA 342 Gazelle
AH-64 Apache
E-2C Hawkeye
Sea King 47

Ethiopia
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Mi-8 'Hip'

Gabon
Mirage 5
Magister
Turbo-Mentor
SA-342 Gazelle

Ghana
MB 326
MB 339
SF.260 Warrior
Alouette III

Guinea Bissau
MiG-17 'Fresco'
MiG-15 'Fagot'

Guinea Republic
MiG-17 'Fresco'
MiG-21 'Fishbed'

Ivory Coast (Cote D'Ivoire)
Alpha Jet

Kenya
F-5 Tiger II
Hawk
Strikemaster
Hughes 500

Libya
MiG-21 'Fishbed'
MiG-23 'Flogger'
MiG-25 'Foxbat'
Su-22 'Fitter'
Su-24 'Fencer'
Tu-22 'Blinder'
Mirage F1
Mirage 5
Jastreb
Galeb
SF.260 Warrior
Mi-25 Hind
Gazelle
SA 321 Super Frelon
Mi-14 'Haze'

Madagascar
MiG-17 'Fresco'
MiG-21 'Fishbed'

Mali
MiG-17 'Fresco'
MiG-21 'Fishbed'

Mauritania
BN-2A Defender

Morocco
F-5
F-5 Tiger
Mirage F1
Bronco
Alpha Jet
Magister
Gazelle

Mozambique
MiG-17 'Fresco'
MiG-21 'Fishbed'
Mi-8 'Hip'
Mi-25 'Hind'

Nigeria
MiG-21 'Fishbed'
Jaguar
Alpha Jet
Albatros
MB 339
Navy Lynx

Rwanda
Guerrier

Senegambia
CM.170 Magister
Guerrier
Reims F337

Somalia
Hunter
MiG-17 'Fresco'
MiG-21 'Fishbed'
Shenyang F-6 (MiG-19)
SF.260 Warrior

South Africa
Cheetah
Mirage F1
Impala (MB 326)

Sudan
MiG-21 'Fishbed'
MiG-23 'Flogger'
Shenyang F-5 (MiG-17)
Shenyang F-6 (MiG-19)
F-5 Tiger II
Strikemaster

Tanzania
Shenyang F-5 (MiG-17)
Shenyang F-6 (MiG-19)
Chengdu F7 (MiG-21)

Togo
Alpha Jet
EMB-326
Epsilon

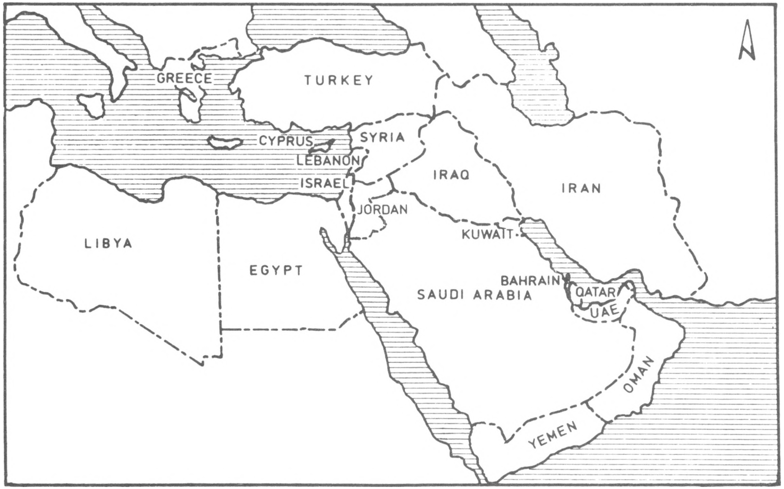
Tunisia
F-5 Tiger II
MB 326
SF.260 Warrior
SA 342 Gazelle

Uganda
SF.260 Warrior

Zaire
Mirage 5
MB 326
Reims F337

Zambia
MiG-21 'Fishbed'
Shenyang F-6 (MiG-19)
MB 326
Jastreb/Galeb
Warrior
MFI-17 Supporter

Zimbabwe
Chengdu F-7 (MiG-21)
Hunter
Hawk
Warrior
Reims F337
Alouette III


GREECE
TURKEY
CYPRUS
SYRIA
LEBANON
ISRAEL
IRAQ
IRAN
JORDAN
LIBYA
EGYPT
KUWAIT
BAHRAIN
SAUDI ARABIA
QATAR
UAE
OMAN
YEMEN

Bahrain
F-16
F-5 Tiger II

Cyprus
SA 342 Gazelle

Greece
Mirage 2000
F-16
Corsair
Starfighter
F-5
Phantom
Mirage F-1
AB.212

Iran
F-14 Tomcat
MiG-29 'Fulcrum'
Phantom
F-5 Tiger II
Chengdu F-7 (MiG-21)
Shenyang F-6 (MiG-19)
Orion
SH-3D Sea King
AB 212AS
AH-1 Cobra

Iraq
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
MiG-25 'Foxbat'
MiG-29 'Fulcrum'
Shenyang F-6 (MiG-19)
Su-7 'Fitter'
Su-25 'Frogfoot'
Tu-16 'Badger'
Tu-22 'Blinder'
Mirage F1
Hunter
Jet Provost
Albatros
Baghdad I (Il-76 AEW)
Super Frelon
Gazelle
Alouette
AB 212AS
BO 105
Mi-25 'Hind'

Israel
F-15
F-16
Kfir
Phantom
Skyhawk
Arava (ELINT)
Cobra
Hughes 500
E-2C Hawkeye

Kuwait
F-18 Hornet
Mirage FI
A-4 Skyhawk
Hawk
Super Puma
Gazelle

Lebanon
Hunter
Gazelle

Oman
Jaguar
Hunter
Hawk
Strikemaster

Qatar
Mirage F1
Alpha Jet

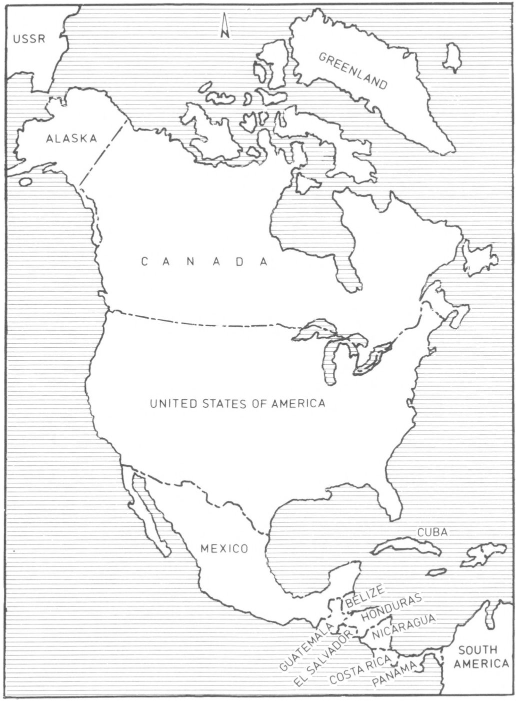
Saudi Arabia
F-15
Tornado (IDS and ADV)
F-5 Tiger II
E-3A
Strikemaster
Dauphin
AH-64 Apache

Syria
MiG-21 'Fishbed'
MiG-23 'Flogger'
MiG-25 'Foxbat'
MiG-29 'Fulcrum'
Su-20 'Fitter'
Su-24 'Fencer'
Su-22 'Fresco'
Mi-25 'Hind'
Gazelle

Turkey
F-16
Starfighter
Phantom
F-5
Tracker
Cobra
AB 212 ASW

United Arab Emirates
Mirage 5
Mirage 2000
Hawk
MB 326
MB 339
Super Puma
Gazelle
Alouette

Yemen
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-22 'Fitter'
Mi-25 'Hind'


USSR
ALASKA
GREENLAND
CANADA
UNITED STATES OF AMERICA
MEXICO
CUBA
BELIZE
HONDURAS
GUATEMALA
EL SALVADOR
NICARAGUA
COSTA RICA
PANAMA
SOUTH AMERICA
N

Belize
Harrier (RAF)

Canada
CF-18 Hornet
CF-5
Aurora (Orion)
CP-121 Tracker

Cuba
MiG-17 'Fresco'
MiG-19 'Farmer'
MiG-21 'Fishbed'
MiG-23 'Flogger'
MiG-29 'Fulcrum'
Mi-8/Mi-17 'Hip'
Mi-14 'Haze'
Mi-25 'Hind'

El Salvador
Dragonfly
Magister
AC-47 Dakota (Gunship)
Guerrier
UH-1 Iroquois
Hughes 500

Guatemala
A-37B Dragonfly
PC-7
Arava
Bell 212/412
Iroquois

Honduras
F-5 Tiger II
Super Mystere B.2
Sabre
Dragonfly

Mexico
F-5 Tiger II
AT-33 Shooting Star
PC-7
Bell 205
Bell 212

Nicaragua
Albatros
AT-33 Shooting Star
SF.260 Warrior
Mi-25 'Hind'

Panama
A-37B Dragonfly

USA

(USAF)
B-52 Stratofortress
B-IB
F-III/FB-III
F-4 Phantom
F-15 Eagle
F-16 Fighting Falcon
F-117A
Corsair II
Thunderbolt II
Bronco
Dragonfly
Hercules
E-3 Sentry
RC-135
TR-1

(US Army)
Apache
Cobra
AH-66 Commanche
Black Hawk

(USMC)
Hornet
F-5 Tiger
Phantom
Skyhawk
Intruder
Prowler
Harrier
Sea Cobra

(USN)
F-18 Hornet
F-14 Tomcat
F-16 Fighting Falcon
F-5 Tiger II
Skyhawk
Corsair
Intruder
Prowler
EA-3
Hawkeye
Orion
Viking
Sea King
Seahawk
Seasprite

N
VENEZUELA
GUYANA
SURINAM
GUIANA
COLOMBIA
ECUADOR
PERU
BRAZIL
BOLIVIA
PARAGUAY
CHILE
ARGENTINA
URUGUAY

Argentina
Mirage III / 5 / Dagger
Super Etendard
Skyhawk
Canberra
Pucara
MB.339
Tracker
Sea King
Alouette III

Bolivia
Sabre
T-33
PC-7
Texan
Hughes 500M

Brazil
Mirage III
F-5
AMX
EMB-326
Tracker
Tucano
Sea King
SH-3D
Lynx

Chile
Mirage 50
F-5 Tiger II
Hunter
A-37 Dragonfly
Halcon
Bandeirante (MR)

Chile (contd.)
Super Puma
Dauphin
Alouette

Colombia
Kfir
Mirage 5
A-37B Dragonfly
T-37
Pucara
Hughes 500

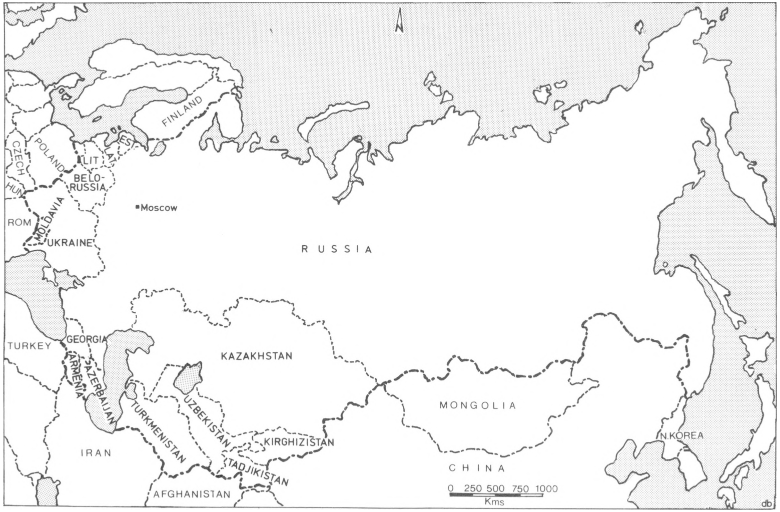
Ecuador
Mirage F1
Kfir
Jaguar
Strikemaster
A-37B Dragonfly

Paraguay
EMB-326
AT-6 Texan

Peru
Mirage 2000
Mirage 5
Su-22 'Fitter'
Canberra
A-37 Dragonfly
Tracker
Mi-25 'Hind'
Sea King
AB 212ASW
Alouette III

Uruguay
Pucara
A-37B Dragonfly
AT-33
Tracker

Venezuela
F-16
CF-5
Mirage III/5/50
Bronco
Aviocar


FINLAND
EST
LAT
LIT
POLAND
CZECH
HUN
BELO-RUSSIA
Moscow
ROM
MOLDAVIA
UKRAINE
RUSSIA
TURKEY
GEORGIA
ARMENIA
AZERBAIJAN
KAZAKHSTAN
TURKMENISTAN
UZBEKISTAN
KIRGHIZISTAN
TADJIKISTAN
IRAN
AFGHANISTAN
MONGOLIA
CHINA
N.KOREA
0 250 500 750 1000
Kms
db

Bulgaria
MiG-29 'Fulcrum'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-22 'Fitter'
Su-25 'Frogfoot'
Mi-4 'Hound'
Mi-8 'Hip'
Mi-14 'Haze'
Mi-24 'Hind'

Czechoslovakia
MiG-29 'Fulcrum'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-20/22 'Fitter'
Su-25 'Frogfoot'
Mi-24 'Hind'

Hungary
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-22 'Fitter'
Su-25 'Frogfoot'
Mi-24 'Hind'

Mongolia
MiG-17 'Fresco'
MiG-21 'Fishbed'

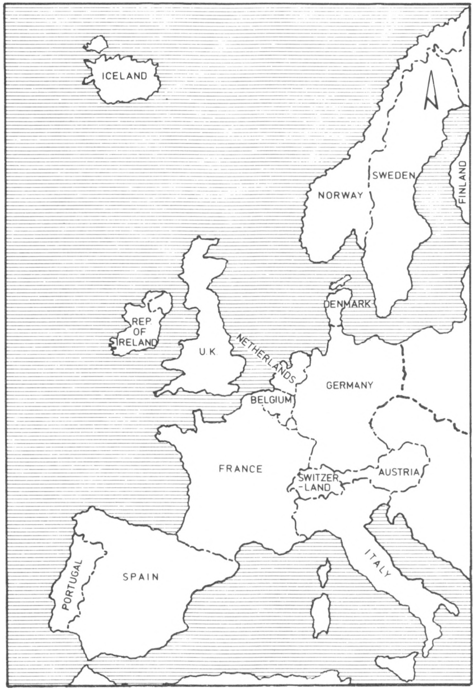
Poland
MiG-29 'Fulcrum'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-7/20 'Fitter'
Iskra
Mi-14 'Haze'
Mi-24 'Hind'

Romania
MiG-29 'Fulcrum'
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Orao
Il-28 'Beagle'
Alouette III (IAR-316)
Airfox (IAR-317)
Mi-14 'Haze'

CIS
Tu-16 'Badger'
Tu-22 'Blinder'
Tu-26 'Backfire'
Tu-28 'Fiddler'
Tu-95/142 'Bear'
Tu-160 'Blackjack'
MiG-21 'Fishbed'
MiG-23/27 'Flogger'

CIS (contd.)
MiG-25 'Foxbat'
MiG-29 'Fulcrum'
MiG-31 'Foxhound'
Su-15 'Flagon'
Su-17 'Fitter'
Su-24 'Fencer'
Su-25 'Frogfoot'
Su-27 'Flanker'
Yak-28 'Firebar'
Yak-38 'Forger'
Il-76 'Mainstay'
Tu-126 'Moss'
Il-38 'May'
Be-12 'May'
Mi-8 'Hip'
Mi-14 'Haze'
Mi-24 'Hind'
Ka-25 'Hormone'
Ka-27 'Helix'

Yugoslavia
MiG-21 'Fishbed'
MiG-29 'Fulcrum'
Orao
Jastreb
Galeb
Super Galeb
Mi-8 'Hip'
Gazelle
Ka-25 'Hormone'


ICELAND
NORWAY
SWEDEN
FINLAND
DENMARK
REP. OF IRELAND
U.K.
NETHERLANDS
BELGIUM
GERMANY
FRANCE
SWITZER-LAND
AUSTRIA
ITALY
SPAIN
PORTUGAL

Austria
Draken
Saab 105

Belgium
F-16
Mirage 5
A-109

Denmark
F-16
Draken
AS 550

Finland
Draken
MiG-21 'Fishbed'

France
Mirage III/5
Mirage IV
Mirage F1
Mirage 2000
Jaguar
Etendard
Super Etendard

France (cont.)
Crusader
Alize
Atlantic
Lynx
Alouette III
Gazelle
Super Puma

Italy
Tornado
Starfighter
AMX
G-91/91Y
AV-8B Harrier
Atlantic
Sea King
AB 212
Mangusta

Netherlands
F-16
F-5
F-27 (MR)
Orion
Lynx

Norway
F-16
F-5
Orion
Lynx

Portugal
G-91
Corsair II
Orion

Republic of Ireland
Magister
Warrior

Spain
Hornet
Phantom
Mirage F1
Mirage III
F-5
Orion
Harrier
Sea King
Seahawk

Spain (cont.)
AB 212
Hughes 500M
BO 105

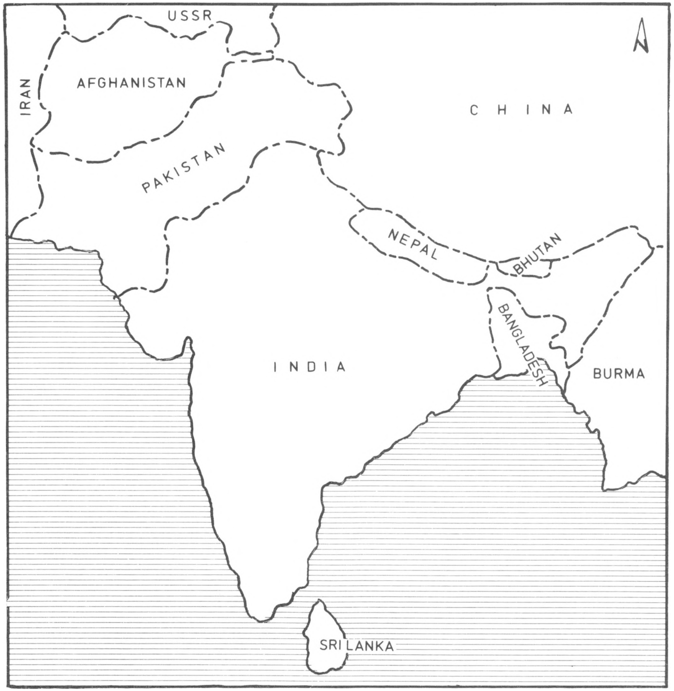
Sweden
Viggen
Draken
Saab 105
Aviocar
Boeing-Vertol 107
AB.206

Switzerland
F-5
Mirage III
Hunter

United Kingdom
Tornado GR.1/F.2/F.3
Phantom
Jaguar
Harrier/Sea Harrier
Buccaneer
Nimrod

United Kingdom (cont.)
E-3 Sentry
Canberra
Sea King
Lynx

Germany
Tornado
Phantom
MiG-29 'Fulcrum'
Alpha Jet
Atlantic
Sea King
Mi-14 'Haze'
Lynx
BO 105


USSR
IRAN
AFGHANISTAN
C H I N A
PAKISTAN
NEPAL
BHUTAN
BANGLADESH
INDIA
BURMA
SRI LANKA

Afghanistan
MiG-17 'Fresco'
MiG-19 'Farmer'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-7 'Fitter'
Su-25 'Frogfoot'
L-39 Albatros
L-29 Delfin
Mi-8/17 'Hip'
Mi-24 'Hind'

Bangladesh
Shenyang F-6 (MiG-19)
F-7 Airguard
MiG-21 'Fishbed'

Burma (Myanma)
F-6 (MiG-19)
F-7 (MiG-21)
Super Galeb
PC-7/PC-9

India
MiG-21 'Fishbed'

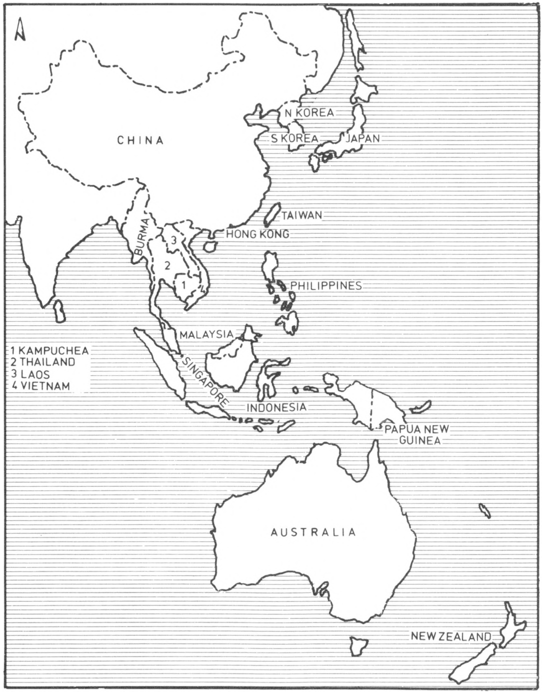
India (cont.)
MiG-25 'Foxbat'
MiG-27 'Flogger'
MiG-29 'Fulcrum'
Mirage 2000
Jaguar
Marut
Sea Harrier
Canberra
Tu-142 'Bear'
Il-38 'May'
Alize

India (cont.)
Sea King
Ka-25 'Hormone'
Ka-27 'Helix'
Alouette
Mi-25 'Hind'

Pakistan
F-7 (MiG-21) Airguard
Shenyang A-5 Fantan
Shenyang F-6 (MiG-19)
F-16

Pakistan (cont.)
Mirage III/5
Atlantic
Sea King
Alouette
Cobra

Sri Lanka
SF.26 Warrior
Bell 212/412


CHINA
N KOREA
S KOREA
JAPAN
TAIWAN
HONG KONG
BURMA
3
2
1
4
PHILIPPINES
MALAYSIA
SINGAPORE
INDONESIA
PAPUA NEW GUINEA
AUSTRALIA
NEW ZEALAND
1 KAMPUCHEA
2 THAILAND
3 LAOS
4 VIETNAM

Australia
F-111
F-18 Hornet
Orion
Seahawk
Sea King

Brunei
SF.260 Warrior
Bo.105

China (PRC)
Shenyang J-5 (MiG-17)
Shenyang J-6 (MiG-19)
J-7 (MiG-21)
Nanchang Q-5 Fantan
Shenyang J-8 Finback
Harbin H-5 (Il-28)
H-6 (Tu-16)
Beriev Be-6 'Madge'
Harbin SH-5
Gazelle
Super Frelon

Indonesia
F-16
F-5 Tiger II
Skyhawk
Bronco
Hawk
Alouette
Hughes 500
Wasp

Japan
F-15 Eagle
F-4 Phantom
Mitsubishi F-1
Hawkeye
Orion
Neptune
SH-3 Sea King
Seahawk
Cobra

Korea, North
MiG-21 'Fishbed'
MiG-23 'Flogger'
MiG-29 'Fulcrum'

Korea, North (cont.)
Shenyang F-5 (MiG-17)
Shenyang A-5 Fantan
Shenyang F-6 (MiG-19)
Su-7 'Fitter'
Su-25 'Frogfoot'
Harbin H-5 (Il-28)

Korea, South
F-16
F-4 Phantom
F-5 Tiger II
F-5
T-28 Trojan
A-37 Dragonfly
Cobra
Hughes 500
Tracker
Lynx
Alouette

Laos
MiG-21 'Fishbed'
AC-47 Dakota (gunship)

Malaysia
F-5 Tiger II
Skyhawk
Hawk
Wasp

New Zealand
Skyhawk
Strikemaster
MB.339
Orion

Singapore
F-16
F-5 Tiger II
Skyhawk
Hunter
SF.260 Warrior
Hawkeye

Taiwan
Ching-Kuo
F-5 Tiger II
F-104 Starfighter
AT-3
Tracker
Seahawk
Hughes 500

Thailand
F-16
F-5/F-5 Tiger II
Dragonfly
Bronco
AC-47 Dakota (gunship)
AU-23 Peacemaker
Trojan
Tracker
F-27 (Maritime)
Searchmaster
Cessna/Summit 337
Bell 212
Do 228

Vietnam
MiG-17 'Fresco'
MiG-21 'Fishbed'
MiG-23 'Flogger'
Su-22 'Fitter'
F-5
A-37 Dragonfly
Be-12 'Mail'
Mi-25 'Hind'
Ka-25 'Hormone'.

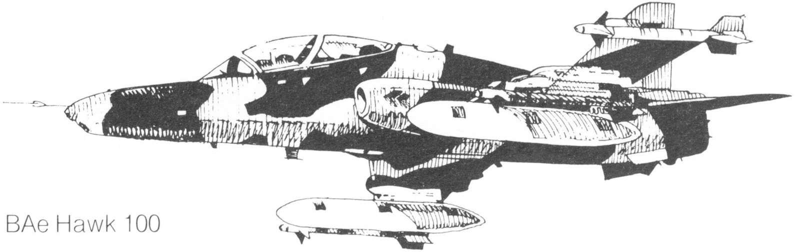
CIVIL AIRCRAFT REGISTRATIONS

Registration markings are a useful aid to recognition if they can be seen. This is the list of national civil prefixes:

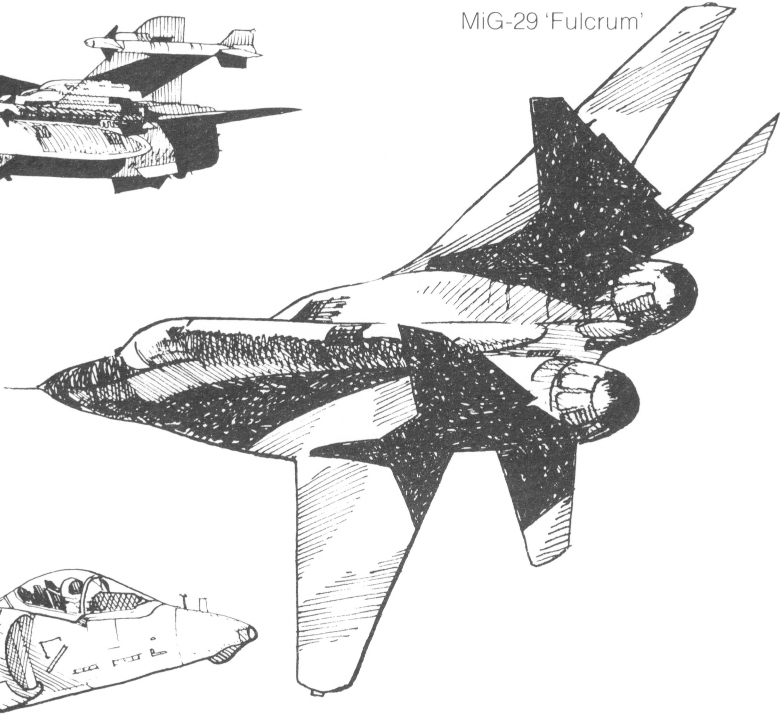
AP	Pakistan
A2	Botswana
A3	Tonga
A5	Bhutan
A6	United Arab Emirates
A7	Qatar
A9C	Bahrain
A40	Oman
B	China
C, CF	Canada
CC	Chile
CCCP	Union of Soviet Socialist Republics
CN	Morocco
CP	Bolivia
CR, CS	Portugal
CU	Cuba
CX	Uruguay
C2	Nauru
C5	Gambia
C6	Bahamas
C9	Mozambique
D	Germany
DQ	Fiji
D2	Angola
D4	Cape Verde
EC	Spain
EI, EJ	Ireland
EL	Liberia
EP	Iran, Islamic Republic of
ET	Ethiopia
F	France
G	United Kingdom
HA	Hungary
HB plus national emblem	Switzerland
HB plus national emblem	Liechtenstein
HC	Ecuador
HH	Haiti
HI	Dominican Republic
HK	Colombia
HL	Republic of Korea
HP	Panama
HR	Honduras
HS	Thailand
HZ	Saudi Arabia
H4	Solomon Islands
I	Italy
JA	Japan
JY	Jordan
J2	Djibouti
J3	Grenada
J6	Saint Lucia
J7	Dominica
LN	Norway
LQ, LV	Argentina
LX	Luxembourg
LZ	Bulgaria
N	United States
OB	Peru
OD	Lebanon
OE	Austria
OH	Finland
OK	Czechoslovakia
OO	Belgium
OY	Denmark
P	Democratic People's Republic of Korea
PH	Netherlands, Kingdom of the
PJ	Netherlands Antilles
PK	Indonesia
PK	West Irian
PP, PT	Brazil
PZ	Suriname
P2	Papua New Guinea
P4	Aruba
RDPL	Lao People's Democratic Republic
RP	Philippines
SE	Sweden

SP	Poland
ST	Sudan
SU	Egypt
SX	Greece
S2	Bangladesh
S7	Seychelles
TC	Turkey
TF	Iceland
TG	Guatemala
TI	Costa Rica
TJ	Cameroon
TL	Central African Republic
TN	Congo
TR	Gabon
TS	Tunisia
TT	Chad
TU	Côte d'Ivoire
TY	Benin
TZ	Mali
VH	Australia
VP, VQ, VR	United Kingdom Colonies and Protectorates
VT	India
V3	Belize
V8	Brunei Darussalam
XA, XB, XC	Mexico
XT	Burkina Faso
XU	Democratic Kampuchea
XV	Vietnam
XY, XZ	Burma
YA	Afghanistan
YI	Iraq
YJ	Vanuatu
YK	Syrian Arab Republic
YN	Nicaragua
YR	Romania
YS	El Salvador
YU	Yugoslavia
YV	Venezuela
Z	Zimbabwe
ZK, ZL, ZM	New Zealand
ZP	Paraguay
ZS, ZT, ZU	South Africa
3A	Monaco
3B	Mauritius
3C	Equatorial Guinea
3D	Swaziland
3X	Guinea
4R	Sri Lanka
4W	Yemen
4X	Israel
5A	Libyan Arab Jamahiriya
5B	Cyprus
5H	United Republic of Tanzania
5N	Nigeria
5R	Madagascar
5T	Mauritania
5U	Niger
5V	Togo
5W	Samoa
5X	Uganda
5Y	Kenya
6O	Somalia
6V, 6W	Senegal
6Y	Jamaica
7O	Democratic Yemen
7P	Lesotho
7QY	Malawi
7T	Algeria
8P	Barbados
8Q	Maldives
8R	Guyana
9G	Ghana
9H	Malta
9J	Zambia
9K	Kuwait
9L	Sierra Leone
9M	Malaysia
9N	Nepal
9Q	Zaire
9U	Burundi
9V	Singapore
9XR	Rwanda
9Y	Trinidad and Tobago

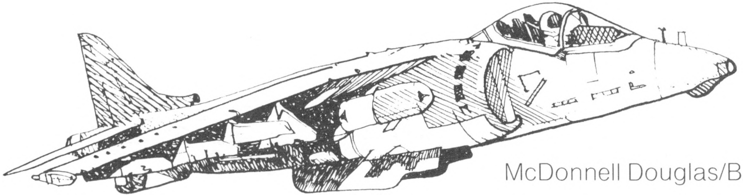
Jet, swept wing, fuselage engine(s)



BAe Hawk 100



MiG-29 'Fulcrum'

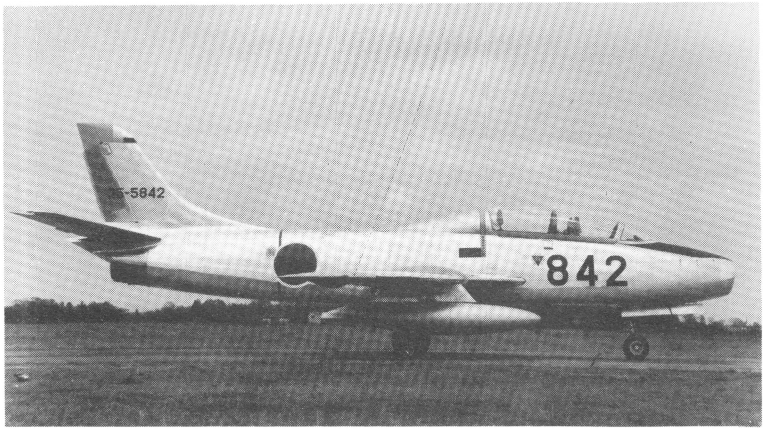


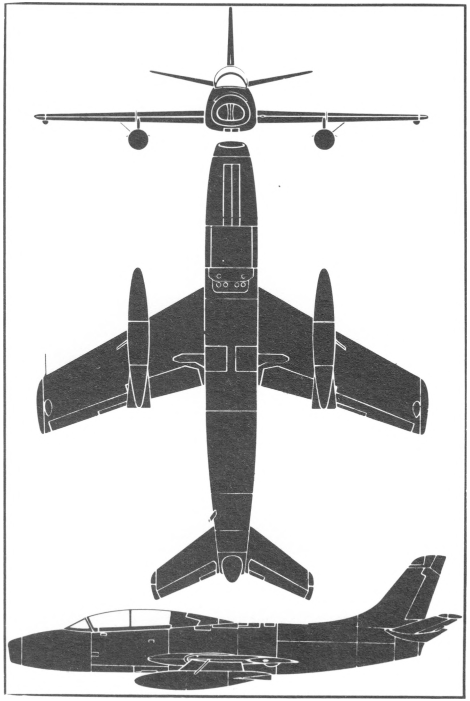
McDonnell Douglas/BAe Harrier G5

Confusion: —

Fuji T1 Hatsutaka

Power: 1 × Orpheus or 1 × J3 turbojet *Span:* 10.5m *Length:* 12.12m



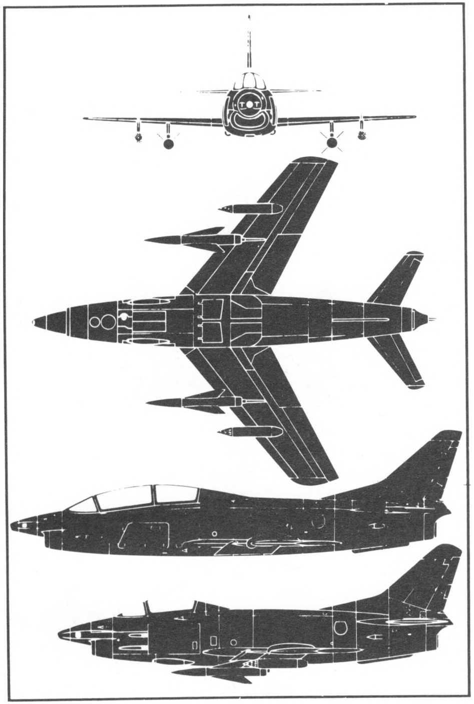


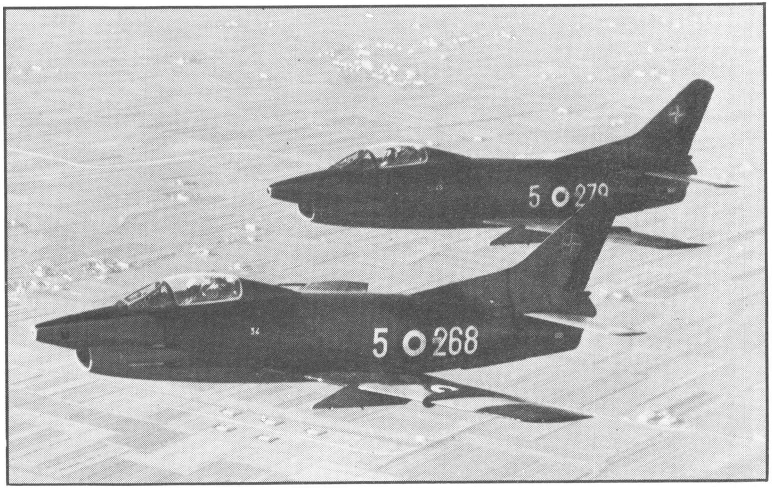
The first aircraft to be designed and built in Japan after the Second World War, the T1 Hatsutaka two-seat military trainer entered service with the Japan Air Self-Defence Force at the end of the 1950s. Bearing a superficial resemblance to the American Sabre, the T1 was initially powered by a British Orpheus engine (T1A), while later versions had the Japanese-built J3 turbojet (T1B and T1C). One machine gun is carried in the nose, and air-to-air missiles, rockets or bombs under the wings. External fuel totals 910 litres in two underwing tanks. Maximum speed of the T1A at 6,100m is 925km/h. Some 40 T1As and 22 T1Bs were built for the Japan Air Self-Defence Force. *Country of origin:* Japan. *Picture:* T1A.

Fiat G.91

Confusion: Hunter, Etendard, G.91Y

Power: 1 × Orpheus turbojet *Span:* 8.56m *Length:* 10.3m

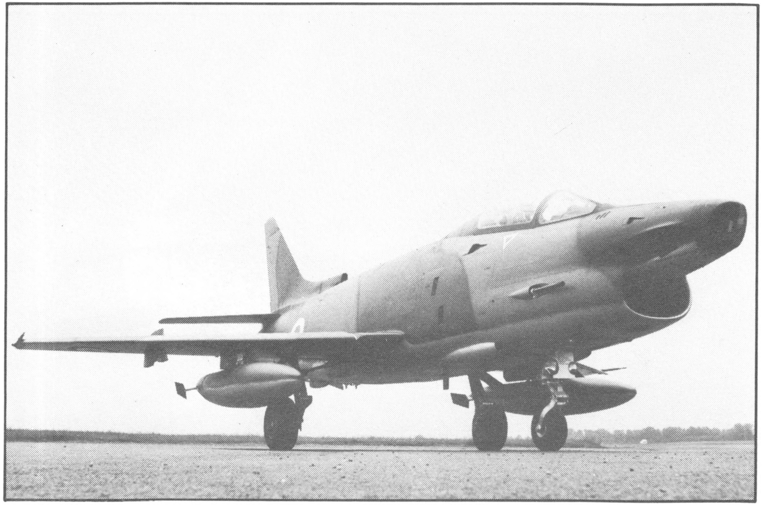


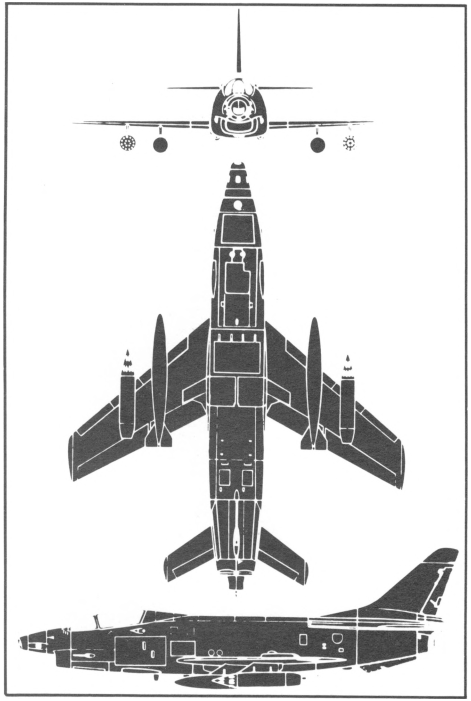


Originally a Fiat design, the G.91 won a NATO light fighter-bomber design contest in the 1950s and was adopted by the Italian and Western German air forces. Internal armament is either four machine guns or two 30mm cannon. Maximum speed is 1,086km/h. The two-seat advanced trainer version is the G.91T (*upper side view silhouette*). In Germany the G.91 is now used for target work. The G.91 is also used by Portugal. *Country of origin:* Italy. *Picture:* G.91R.

Fiat G.91Y

Power: 2 × J85 reheated turbojets *Span:* 9.01m *Length:* 11.67m



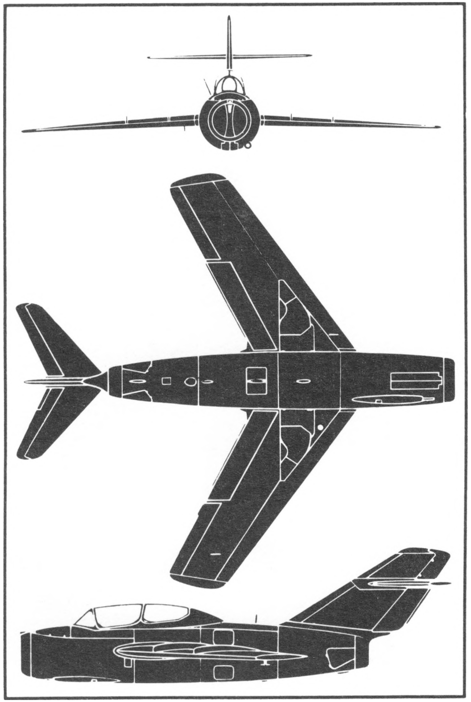


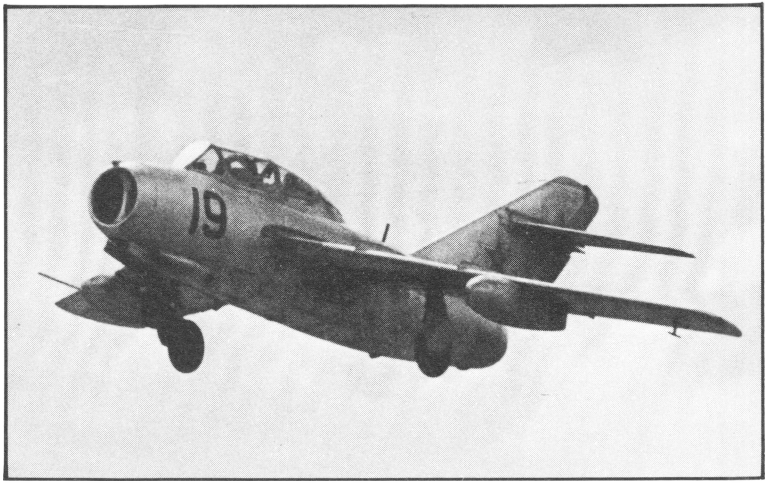
A fighter-bomber and reconnaissance aircraft, the G.91Y was a direct development of the G.91, with twin J85 turbojets replacing the single Orpheus. After a first flight in 1966, a total of 55 G.91Ys were built for the Italian Air Force. Armament comprises two fuselage-mounted 30mm cannon and four underwing pylons for rockets, bombs or guided missiles. Maximum speed at sea level is 1,110km/h. Cameras are mounted in the nose. *Country of origin:* Italy.

Mikoyan-Gurevich MiG-15UTI ‘Midget’

Confusion: ‘Fresco’, ‘Farmer’

Power: 1 × RD-45 turbojet *Span:* 10.08m *Length:* 10.04m

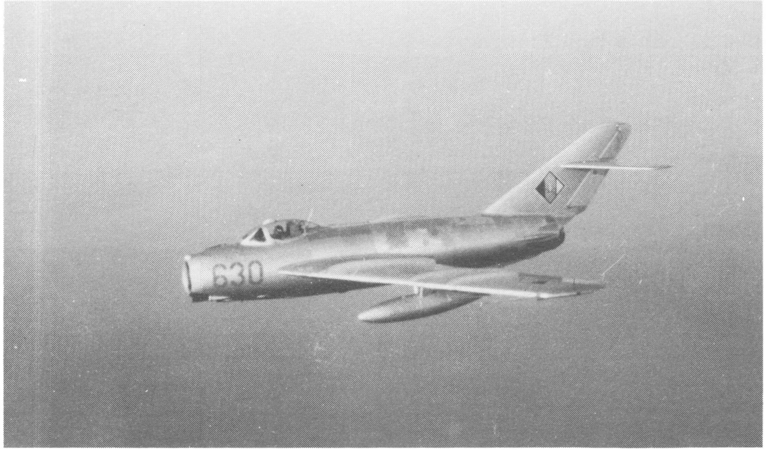


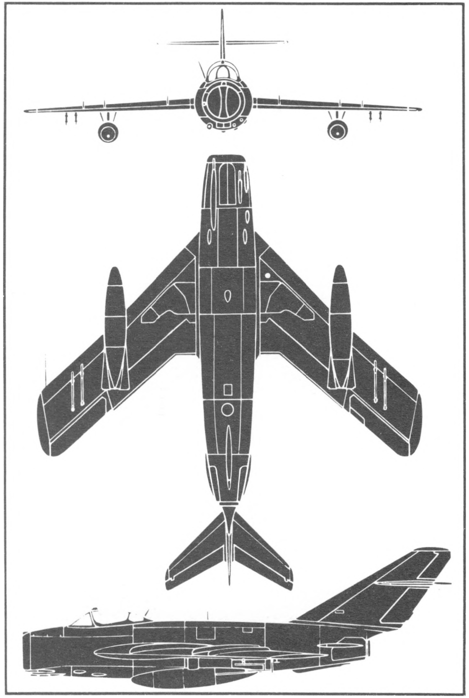


The Soviet MiG-15 swept-wing fighter, NATO code-name ‘Fagot’, caused a world sensation when it first appeared over the Korean War battlefields in 1950. Very large numbers of MiG-15 ‘Fagots’ were built for use by many air forces. The MiG-15UTI two-seat advanced trainer, code-named ‘Midget’, was supplied throughout Eastern Europe and to 17 other countries. Like the ‘Fagot’, the ‘Midget’ is powered by a pirated development of the Rolls-Royce Nene. The trainer carries a cannon or a machine gun in the fuselage. *Country of origin:* Russia.

Mikoyan-Gurevich MiG-17 'Fresco'

Power: 1 × VK-1F reheated turbojet *Span:* 9.63m *Length:* 11.09m



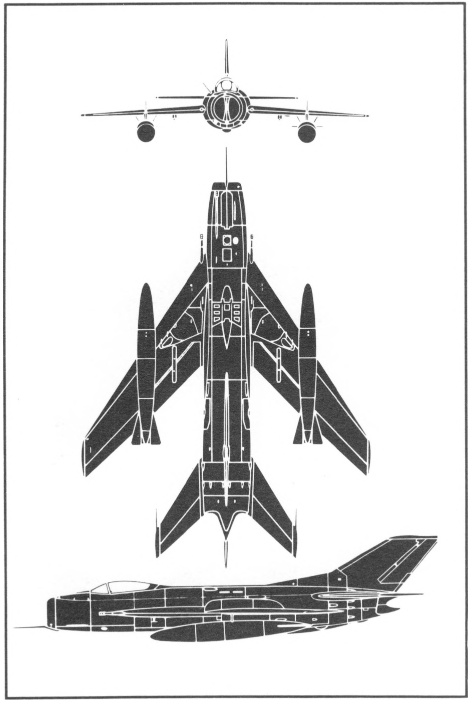


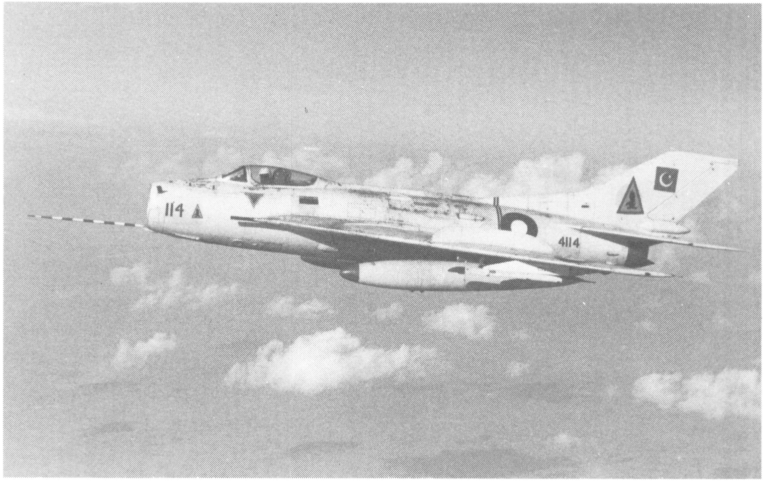
Though outwardly the MiG-17 'Fresco' bears a close similarity to the MiG-15 'Fagot', the wing and tailplane were in fact redesigned and the rear fuselage was lengthened. Later versions ('Fresco C' and 'D', 'E' and 'F') incorporated an afterburner. 'Frescos' are still used in the fighter-bomber role by air forces round the world. Armament consists of underwing bombs and rocket pods plus three 23mm fuselage cannon on some variants and Alkali radar-homing missiles on others. 'Fresco D', 'E' and 'F' carry centrebody nose radars in addition to radar gunsights in the upper engine-intake lip. *Country of origin:* Russia. *Picture and silhouette:* 'Fresco F'.

Mikoyan MiG-19 'Farmer'

Confusion: 'Fresco'

Power: 2 × Mikulin or 2 × Tumansky reheated turbojets *Span:* 9m *Length:* 13.09m



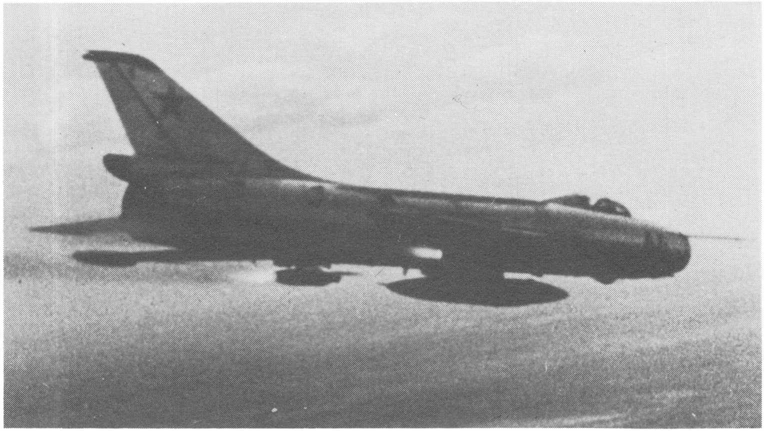


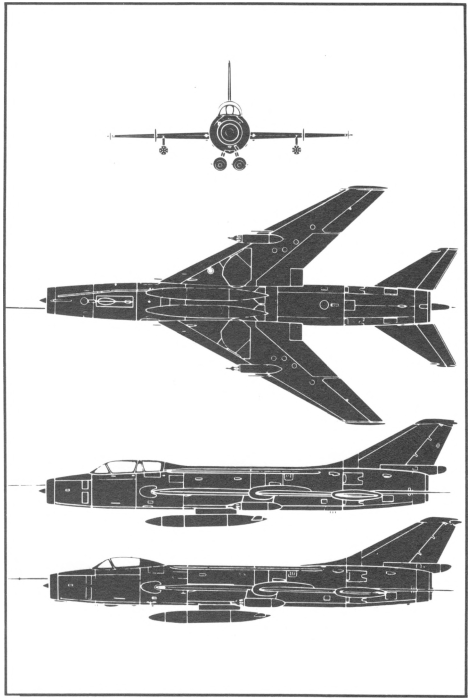
The Soviet Union's first production supersonic fighter, the MiG-19 'Farmer' has been widely used and remains in service in China, Cuba, Egypt, Albania, Vietnam and Pakistan. Standard variants are 'Farmer B' (MiG-19PF and MiG-19PM with air-to-air missiles) and 'Farmer C' (MiG-19SF) with Tumansky engines. Rocket projectiles and bombs can be fitted on underwing pylons for ground attack. 'Farmer' has been built in China as the J-6 and some 70 are believed to be in service there. Normal gun armament is three 30mm cannon. *Country of origin:* Russia. *Silhouette:* 'Farmer C'. *Picture:* J-6.

Confusion: ‘Farmer’

Sukhoi Su-7 ‘Fitter A’

Power: 1 × Lyulka reheated turbojet *Span:* 8.9m *Length:* 17.37m



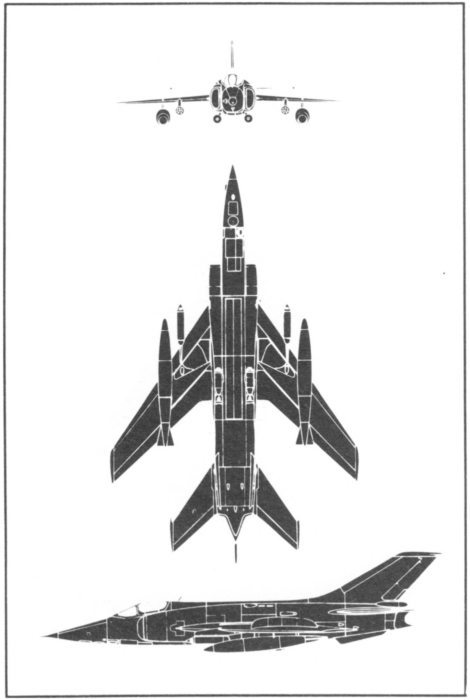


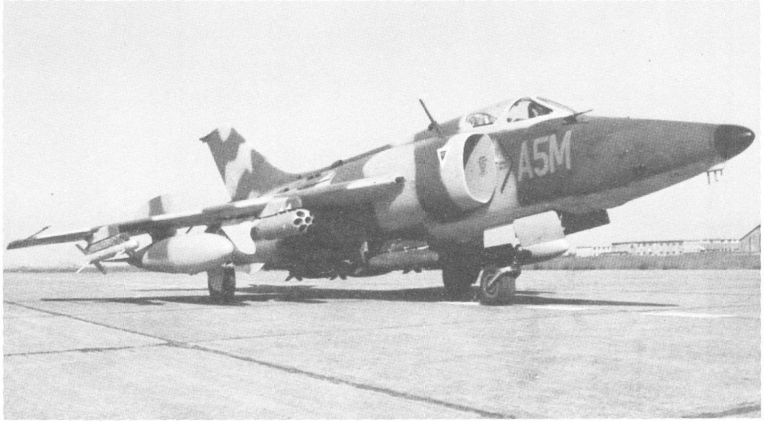
First flown in the mid-1950s, the ‘Fitter A’ fighter/ground attack aircraft is in service in Eastern Europe, Peru and North Korea. Capable of Mach 1.6, ‘Fitter’ carries two 30mm cannon, rockets and bombs. External loads are carried under both fuselage and wings. Some ‘Fitters’ are equipped with rocket-assisted take-off gear to improve short-field performance. The two-seat trainer version, with pilot and pupil in tandem under an extended cockpit, is the Su-7U, code-named ‘Moujik’ (*upper side view silhouette*). Performance figures include a maximum level speed at 11,000m of 1,700km/h; service ceiling of 15,150m; and combat radius of 320–480km. *Country of origin:* Russia.

Nanchang Q-5 Fantan

Confusion: 'Farmer', 'Fitter'

Power: 2 × WP-6 reheated turbojets *Span:* 9.7m *Length overall:* 16.72m



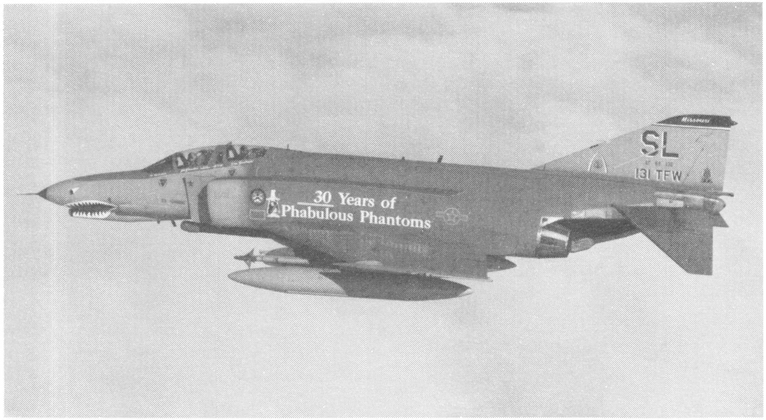


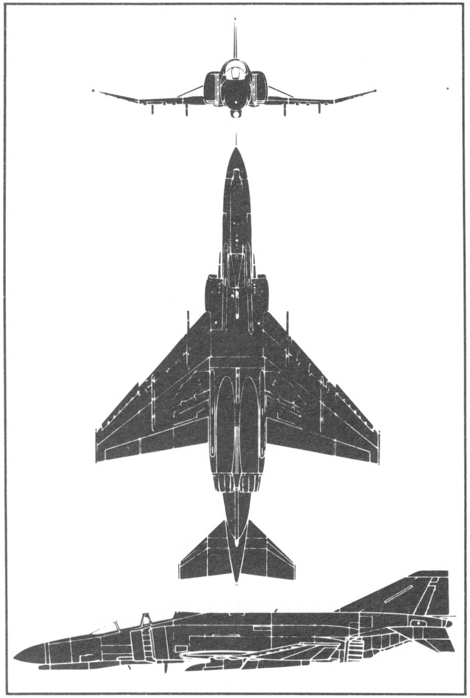
In large scale service with the Chinese and Pakistan Air Forces, the Fantan-A is a twin jet attack aircraft derived from the MiG-19 'Farmer'. Compared with the 'Farmer', the Fantan has flank air intakes instead of a single nose intake. Maximum level speed is 1,190km/h and low level combat radius is 400km. There are eight external store points, of which two pairs in tandem are situated under the fuselage. Maximum bomb load is 2,000kg and two 23mm cannon are mounted in the wing roots. With an upgraded nav/attack system, designed by Alenia, the aircraft designation is changed to Q-5M, or A-5M in export form. Some 1,000 Fantans have been built. *Country of origin:* China. *Picture:* A-5M.

Confusion: Buccaneer, ‘Fishbed’, Jaguar

McDonnell Douglas F-4 Phantom II

Power: 2 × J79 reheated turbojets *Span:* 11.76m *Length:* 18.6m

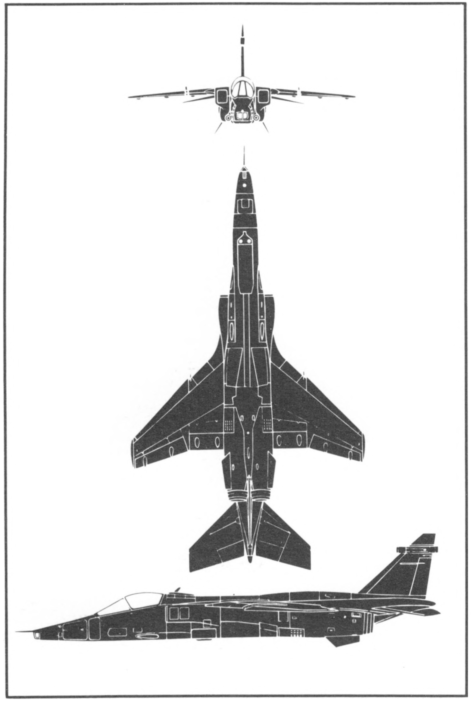


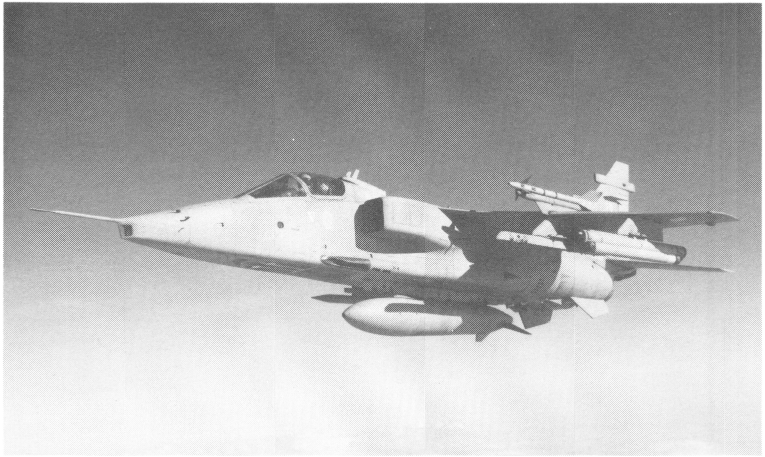


Finally phased out of production in 1979, the Phantom is probably the most numerous aircraft in Western air force inventories (over 5,000 built). Designed as an attack fighter for the US Navy, it was soon adopted by the USAF, serving in the interceptor, close support, reconnaissance (RF-4) and ECM roles. A licence-built version (F-4EJ) is in service in Japan and Spey-engined models in the UK (F-4K/M), while certain early models in the US have been converted into pilotless target aircraft (QF-4B). A wide variety of stores can be carried, including Gatling guns, Sparrow and Sidewinder air-to-air missiles, bombs, rockets, and ECM and recce pods. Various update programmes for the F-4 have been carried out. *Country of origin:* USA. *Silhouette:* F-4F. *Picture:* F-4E.

SEPECAT Jaguar *Confusion:* T-2/F-1, Phantom

Power: 2 × Adour reheated turbofans *Span:* 8.49m *Length:* 15.52m



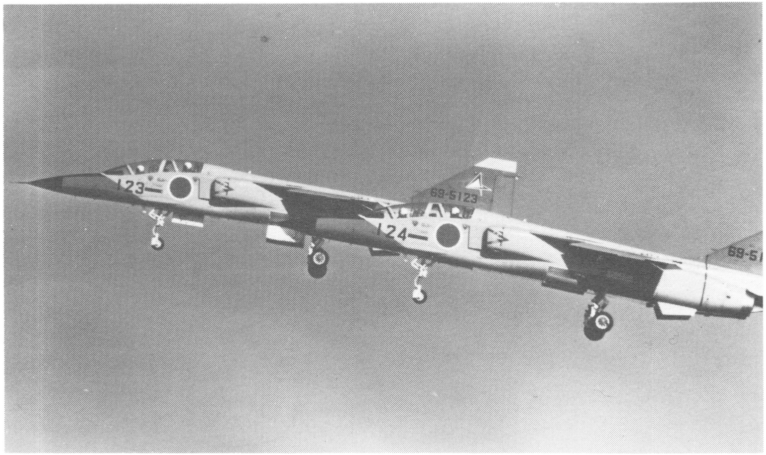


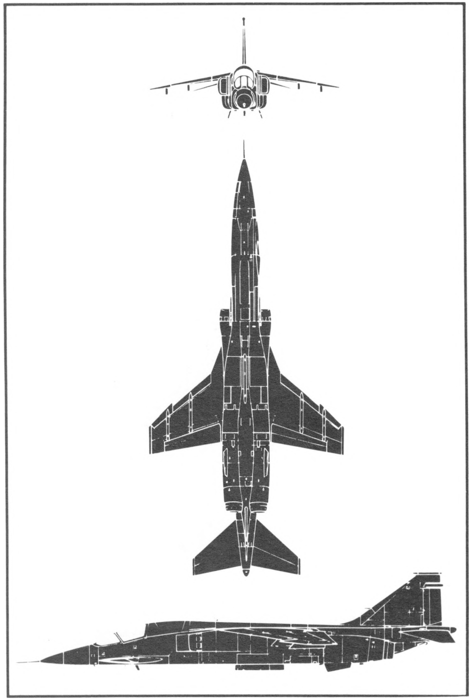
The result of a collaborative agreement signed by the British and French Governments in 1965, the Jaguar strike fighter/trainer is in large-scale service with the RAF and the Armée de l'Air. A total of 22 have been sold to Oman, 18 to Nigeria, 12 to Ecuador and a batch to India plus licence manufacture rights. Single- and two-seat versions have been built. Export versions known as Jaguar International, have uprated engines and provision for the carriage of overwing air-to-air missiles in addition to twin 30mm cannon and underwing bombs, rockets and drop tanks. RAF designations for Jaguar are GR1 and T2. *Country of origin:* UK/France. *Silhouette and picture:* GR1.

Confusion: Jaguar, Phantom, 'Forger'

Mitsubishi T-2/F-1

Power: 2 × Adour reheated turbofans *Span:* 7.8m *Length:* 17.85m



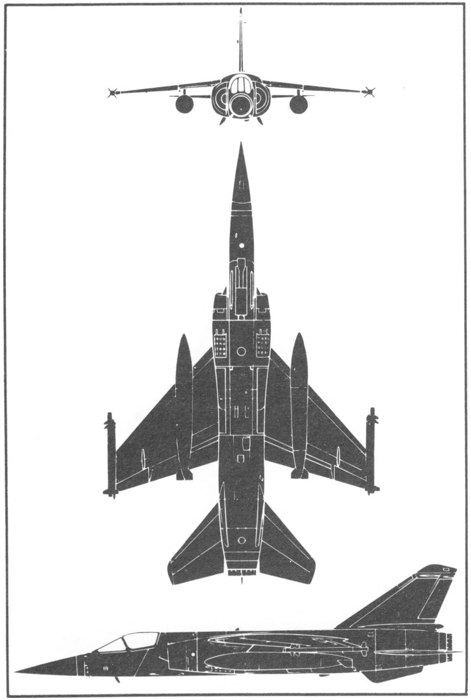


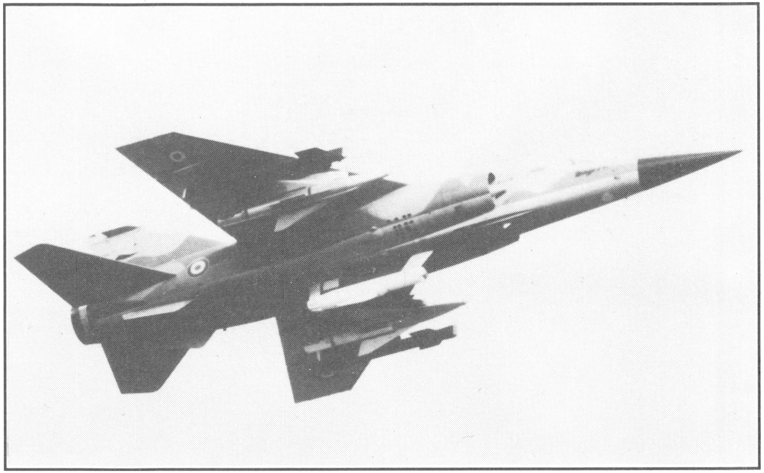
Bearing a marked resemblance to the SEPECAT Jaguar, which preceded it by some two years, the T-2 was selected for development as a two-seat supersonic trainer for the Japan Air Self-Defence Force in 1967. A total of 88 T-2 advanced and T-2A combat trainers are in service, plus 75 of a single-seat, close-support fighter variant designated F-1. F-1 carries bombs, rockets, a 20mm cannon and air-to-air missiles and has a nose radome. Powered by licence-built Rolls-Royce Adour engines similar in output to those fitted in the basic Jaguar, the T-2 is marginally faster and lighter than its European counterpart. *Country of origin:* Japan. *Silhouette:* F-1. *Picture:* T-2.

Dassault-Breguet Mirage F1

Confusion: Crusader, Corsair II

Power: 1 × Atar reheated turbojet *Span:* 8.4m *Length:* 15m

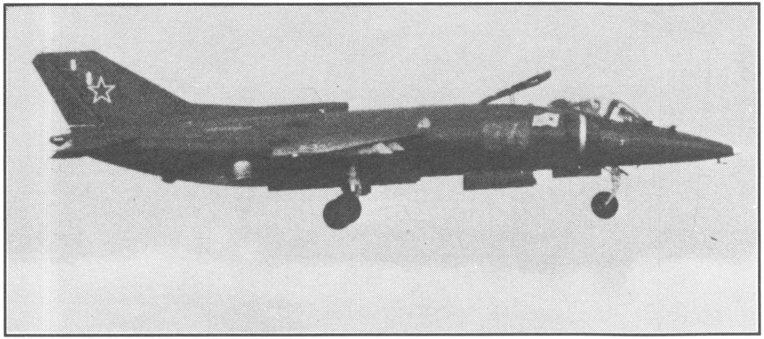


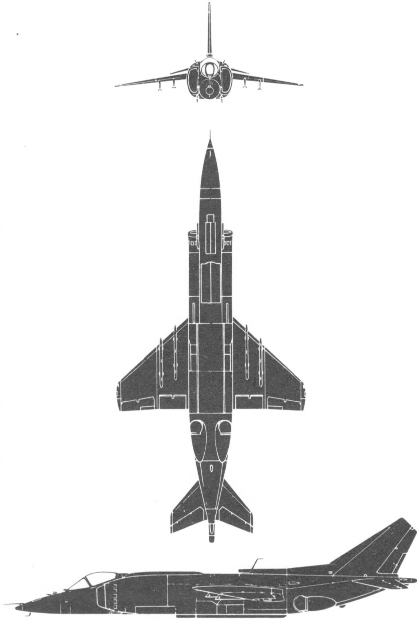


The swept-wing Mach 2 F1 is a single-seat multi-purpose fighter/attack aircraft, over 730 examples of which were procured by 11 countries. The F1A, F1E and F1CT perform the ground attack role, the F1B and F1D are two-seat trainers, the F1C is an interceptor and the F1CR is for reconnaissance. The F1C of the Armée de l'Air is equipped for air-to-air refuelling. A variety of air-to-air and air-to-ground missiles and other weapon loads can be carried in addition to two 30mm cannon. First flown in December 1966. *Country of origin:* France. *Silhouette and picture:* F1A.

Yakovlev Yak-38 'Forger' ('Forger A')

Power: 1 × R-27V turbojet + 2 × liftjets *Span:* 7.32m *Length:* 15.5m



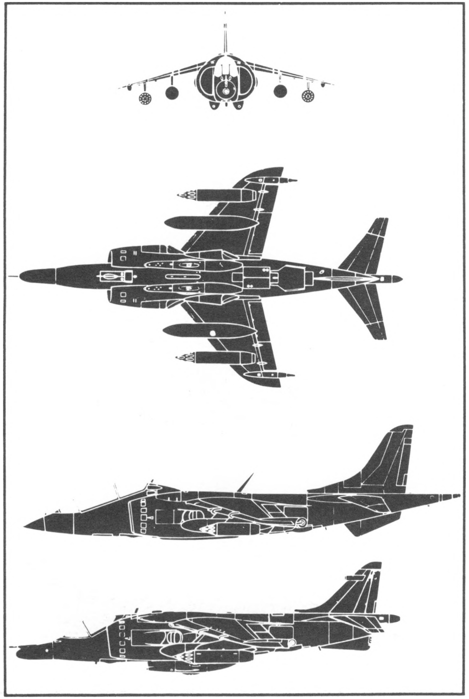


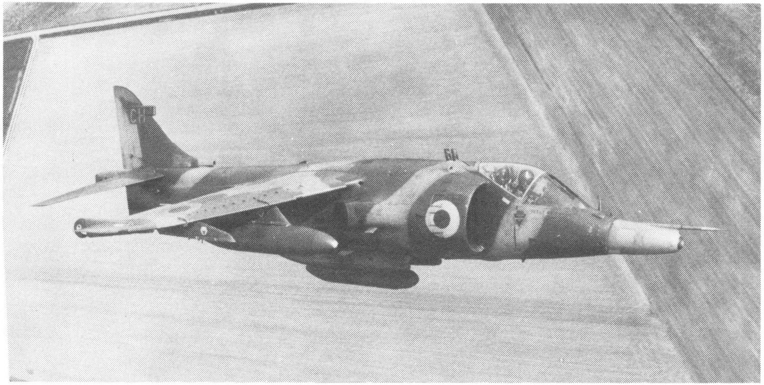
First seen aboard the aircraft carrier *Kiev* in 1976, the naval Yak-38 'Forger' was the first Soviet VTOL aircraft to enter service. It is employed in the interceptor/attack/reconnaissance roles. The powerplant layout is unusual, consisting of a single main turbojet exhausting through vectoring nozzles at the rear plus two lift engines mounted just behind the cockpit. Armament, carried on inner wing pylons, includes guns, bombs, rockets and air-to-air missiles. A two-seat tandem trainer version has the NATO code-name 'Forger B'. The successor to the Yak-38 is the Yak-141 code-named 'Freestyle'. This fighter/attack aircraft has been built in prototype form but no production orders have so far been placed. It is larger than the Yak-38, has twin fins and is equipped with nose radar. *Country of origin:* Russia. *Silhouette and picture:* 'Forger A'.

British Aerospace (BAe) Harrier

Confusion: Sea Harrier, 'Forger', Etendard

Power: 1 × Pegasus vectored-thrust turbofan *Span:* 7.70m *Length:* (GR3): 13.91m

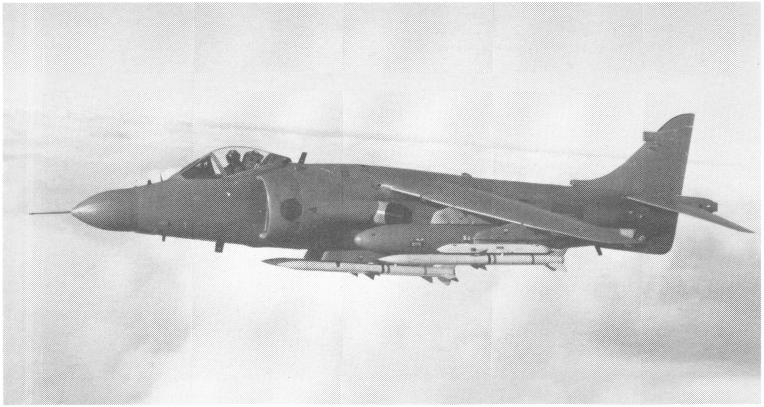


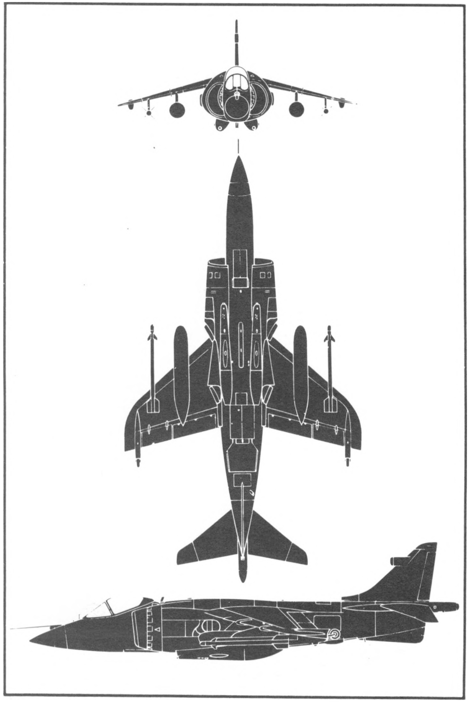


Of all the fixed-wing, vertical/short take-off aircraft to be conceived in the West in the late 1950s/early 1960s, the Harrier, derived from the P.1127, which first flew in 1960, is the only one to gain operational status. It is in large-scale service as a strike reconnaissance fighter with the RAF (GR3), having also served as a close support and tactical reconnaissance aircraft with the US Marine Corps (AV-8A). The Spanish Navy also operates a small number (designated Matador). Both the RAF and USMC adopted a two-seat trainer version of the aircraft with elongated fuselage (RAF T2/USMC TAV-8A). Harrier carries two 30mm Aden guns, bombs, rockets and Sidewinder air-to-air missiles. RAF Harriers have been fitted with a longer nose housing a laser rangefinder. *Country of origin:* UK. *Main silhouette and picture:* GR3; *upper side view:* T2.

BAe Sea Harrier

Power: 1 × Pegasus vectored-thrust turbofan *Span:* 7.7m *Length:* 14.5m



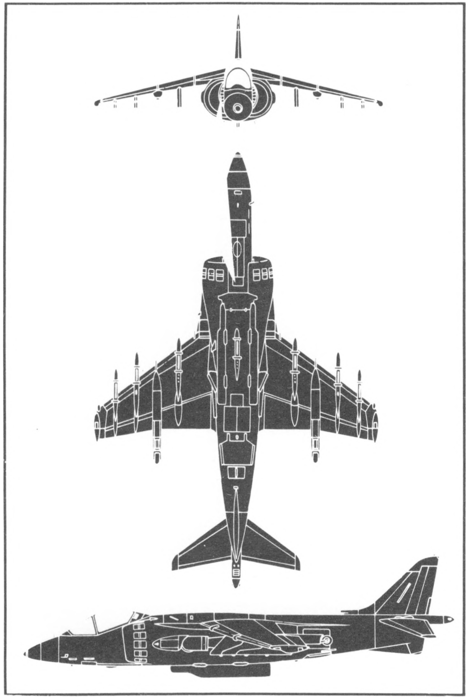


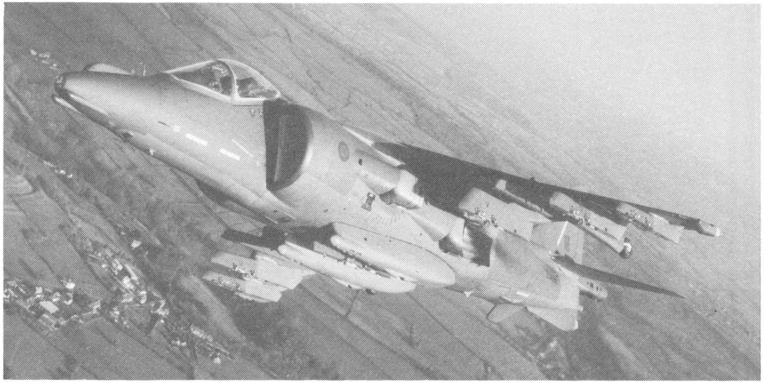
Derived from the basic Harrier, the Sea Harrier FRS1 was modified for maritime operations, 57 having been ordered by the Royal Navy for operation from 'Invincible' class light aircraft carriers. Principal visible differences between Sea Harrier and its land-based counterpart are a redesigned, raised cockpit and the replacement of the laser nose with a pointed radome housing the Blue Fox radar. Armament includes 30mm Aden guns, bombs, rockets, and AIM-9L air-to-air missiles. The Sea Harrier is also in carrierborne service with the Indian Navy. Royal Navy Sea Harriers are undergoing a mid-life update as FRS2, including Blue Vixen radar and AMRAAM missiles. Span will be increased by 61cm and length by 35cm. *Country of origin:* UK. *Silhouette:* Sea Harrier FRS1. *Picture:* Sea Harrier FRS2.

McDonnell Douglas AV-8B/BAe Harrier GR5

Confusion: Harrier GR3, Sea Harrier, 'Forger'

Power: 1 × Pegasus vectored-thrust turbofan *Span:* 9.24m *Length:* 14.12m



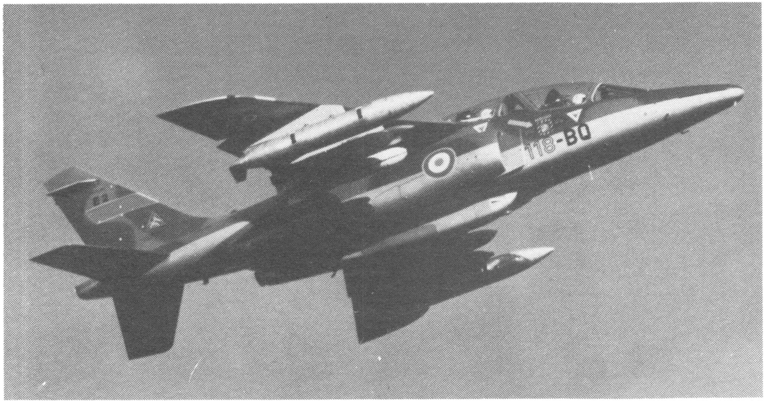


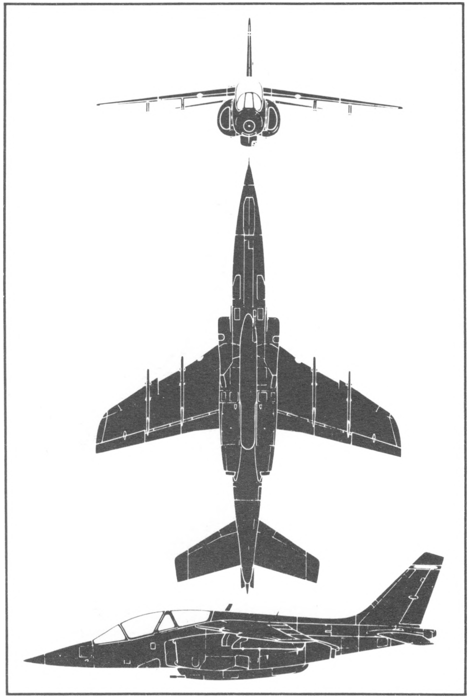
With raised cockpit, composite-material wing with leading-edge root extensions, fuselage underside strakes and six wing weapons/fuel pylons, the AV-8B Harrier II is a second-generation V/STOL aircraft based on the Harrier formula. Jointly produced by McDonnell Douglas and BAe, the AV-8B will run to 300+ examples for the US Marines plus 94 GR5s for the RAF. Compared with the existing AV-8A/Harrier GR3, the AV-8B/GR5 has a radius of action raised to 1,114km. Weapons include two 30mm cannon or a 25mm Gatling gun, bombs, cluster bombs and Maverick and Sidewinder missiles. The trainer AV-8B is designated TAV-8B. GR7 is a night attack version of GR5, T10 is a two-seat trainer. Harrier II Plus is a USMC radar-equipped night attack version of AV-8B also ordered by Italy and Spain. *Countries of origin:* USA/UK. *Silhouette:* AV-8B. *Picture:* GR7.

Confusion: Hunter, Hawk, Harrier

Dassault-Breguet/Dornier Alpha Jet

Power: 2 × Larzac turbofans *Span:* 9.11m *Length:* 12.29m



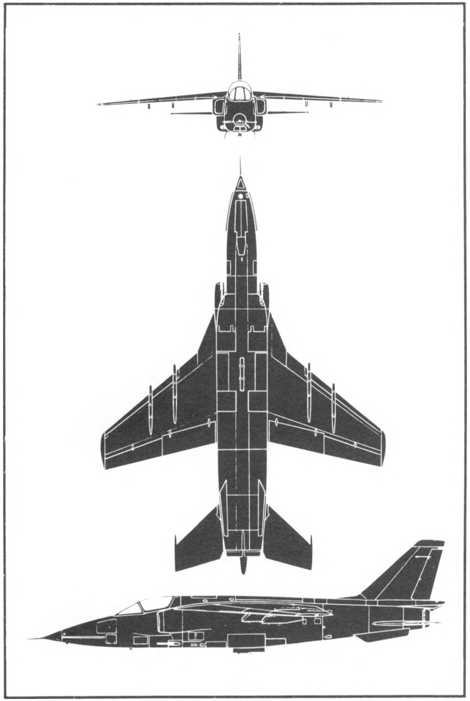


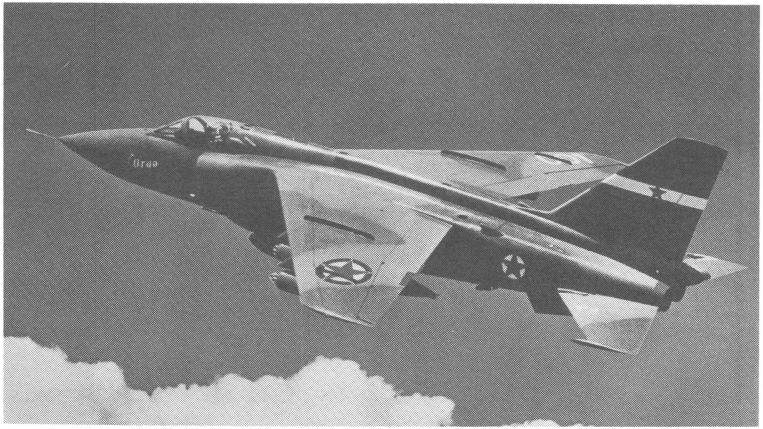
A joint venture by France and Germany, the Alpha Jet is a two-seater to be used for advanced training/light attack by the French and as the 'Close Support version' by the Germans. First flown in 1973, the Alpha Jet was ordered by France, Germany and 8 other countries. Alpha Jet can carry a 30mm or 27mm gun pod under the fuselage, while the Close Support version has four wing pylons suitable for the carriage of a variety of weapons. An attack variant with improved systems and weapon load is known as Alpha Jet 2, while an improved trainer project is Alpha Jet 3. One export variant has an additional dorsal spine. *Countries of origin:* France/Germany. *Silhouette:* Advanced Trainer/light attack version. *Picture:* Close Support version.

SOKO J-22 Orao/IAv Craiova IAR-93

Confusion: Jaguar, Alpha Jet, Harrier

Power: 2 × Viper turbojets *Span:* 9.62m *Length (single seater):* 13.96m



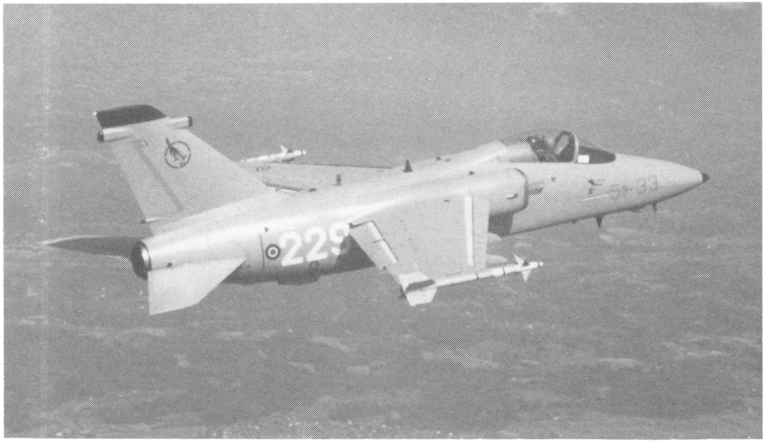


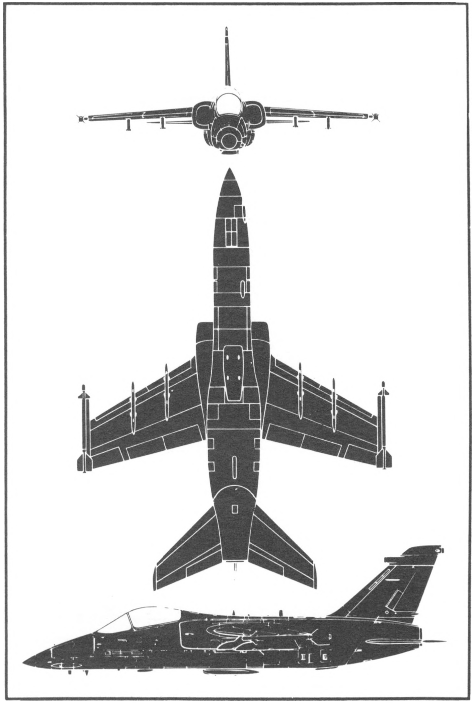
Flown for the first time in 1974, this ground-attack fighter is a joint development by the Yugoslav and Romanian industries. The overall programme is known as 'Yurom', while the type is designated Orao 1 and 2 in Yugoslavia and IAR-93 A and B in Romania, the Orao 2 and B versions having afterburners fitted. Western suppliers provide a number of key systems. Some 400 examples of this subsonic aircraft were expected to be produced for the Yugoslav and Romanian Air Forces. A two-seat trainer version has been produced. With the break-up of Yugoslavia it is not clear whether production is continuing there. *Countries of origin:* Yugoslavia/Romania. *Silhouette:* Orao 2/B. *Picture:* Orao 1.

Confusion: Yurom

Alenia/Aermacchi/EMBRAER AMX

Power: 1 × Spey turbofan *Span:* 8.87m *Length:* 13.57m



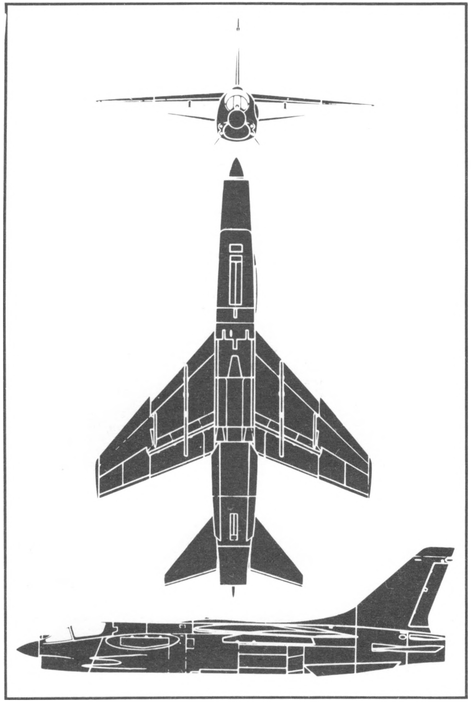


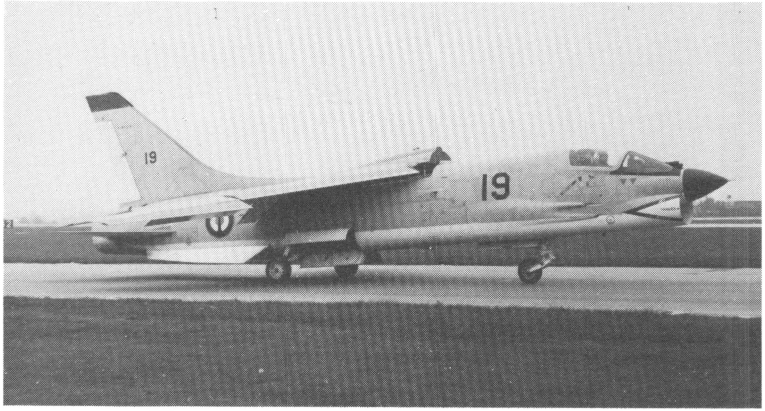
A joint Italian-Brazilian development, the AMX is a single-seat tactical fighter-bomber which equips the air forces of both countries, plus two-seat trainers. AMX first flew in May 1984 and the first squadron was formed in Italy in June 1989. Brazilian aircraft will have two 30mm cannon while those in Italy will have a single multi-barrel 20mm gun. Other armament will include bombs, rocket projectiles and air-to-surface and air-to-air missiles. In Brazil the aircraft is known as the A-1. An anti-ship version is proposed, with the designation AMX-ASV. *Countries of origin:* Italy/Brazil.

Vought F-8 Crusader

Confusion: Corsair II

Power: 1 × J57 reheated turbojet *Span:* 10.87m *Length:* 16.61m



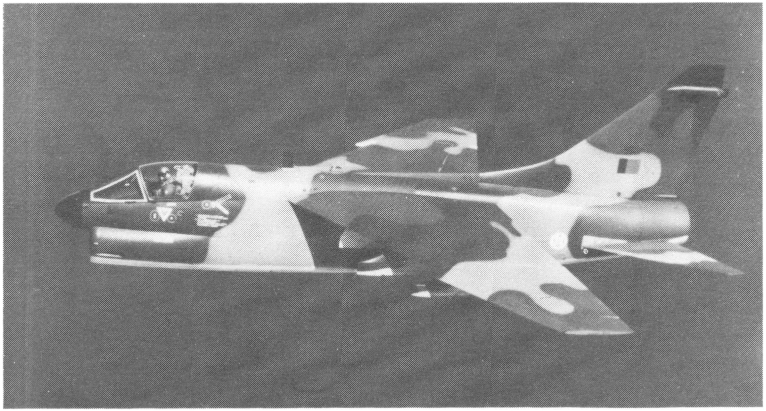


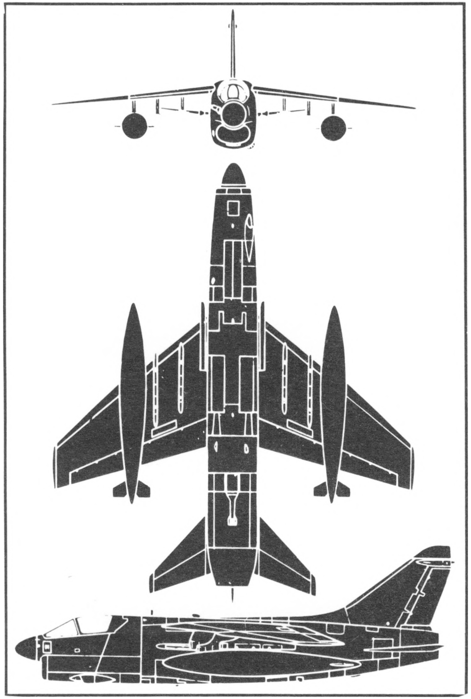
A supersonic carrierborne fighter and reconnaissance aircraft, the Crusader first entered service in 1957 and remains in small numbers with the French Navy. Four 20mm cannon are mounted in the fuselage and there are four positions for air-to-air missiles, air-to-surface missiles or bombs. Two underwing weapon/fuel tank pylons can also be fitted. The wing has variable incidence for low-speed flight. Versions in use are the F-8H, K, J and L interceptors and the RF-8G reconnaissance aircraft. Performance figures include a maximum level speed of 1,930km/h at 11,000m; service ceiling of 11,700m; and combat radius of 708km. *Country of origin:* USA. *Silhouette and picture:* F-8E(FN).

Confusion: Crusader

LTV A-7 Corsair II

Power: 1 × TF41 turbofan *Span:* 11.79m *Length:* 14.05m



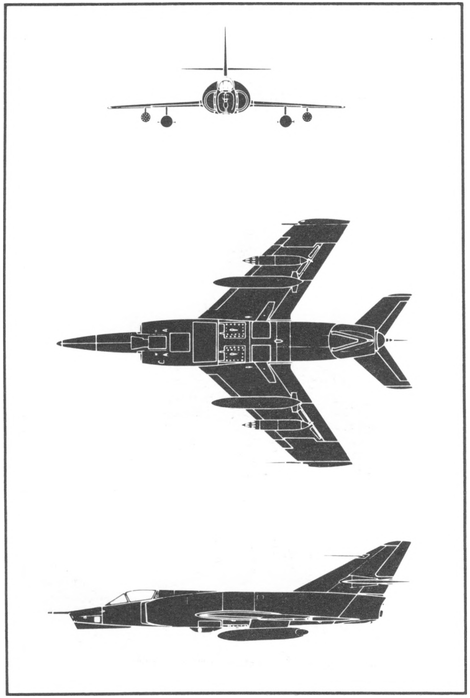


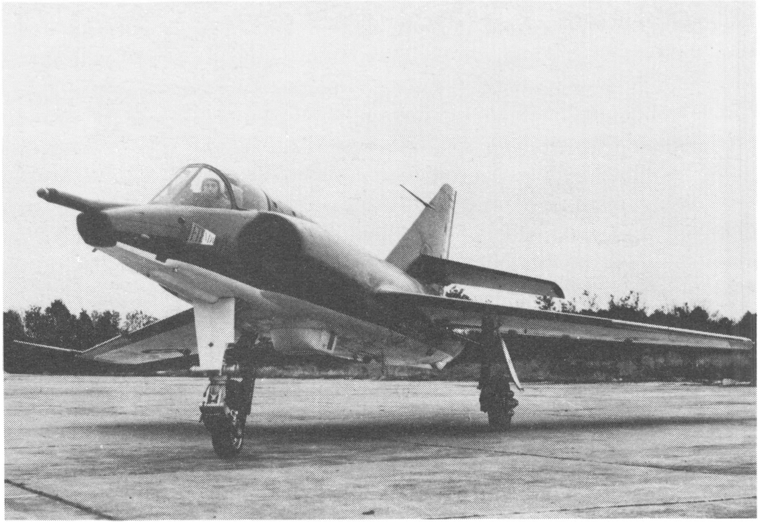
Capable of carrying a massive weapon load, the single-seat subsonic Corsair II is a standard attack aircraft in both the USAF and USN. First flown in September 1965 the A-7 was initially powered by American engines and was later fitted with the Allison licence-built version of the Rolls-Royce Spey. The USAF version is the A-7D (two seat A7-K), the USN version the A-7E and the two-seat trainer is designated TA-7C. TA-7C modified for fleet operations support group is EA-7L.The type has been exported to Greece and Portugal, the latter being known as A-7P/TA-7P. Up to 6,804kg of bombs, rockets, air-to-surface and air-to-air missiles and gun pods can be carried. A 20mm cannon is mounted in the fuselage. Systems updates are in progress. *Country of origin:* USA. *Silhouette:* A-7E. *Picture:* A-7P.

Dassault-Breguet Etendard IVP

Confusion: Hunter, ‘Fitter’, Super Etendard, G.91

Power: 1 × Atar turbojet *Span:* 9.6m *Length:* 14.4m



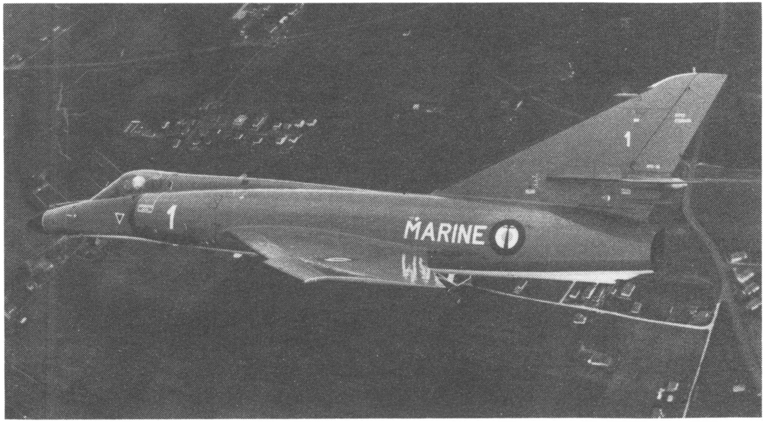


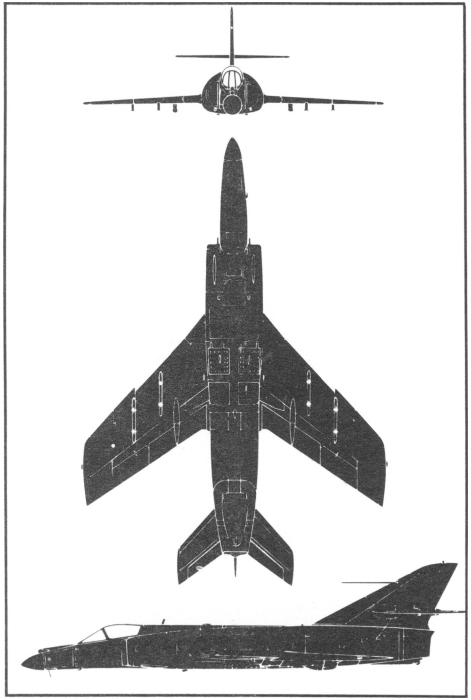
Originally introduced aboard French aircraft carriers in 1962, the Etendard IVM was a single-seat strike fighter. A total of 90 Etendards were built, of which 21 were designated IVP and equipped with cameras in the nose and gun bay. All the IVPs are fitted with flight-refuelling probes. The IVP remains in squadron service with the Aéronavale, while the IVM has been relegated to training or used in the tanker role as the MP. *Country of origin:* France.

Confusion: Etendard, Hunter, G.91Y

Dassault-Breguet Super Etendard

Power: 1 × Atar turbojet *Span:* 9.60m *Length:* 14.31m



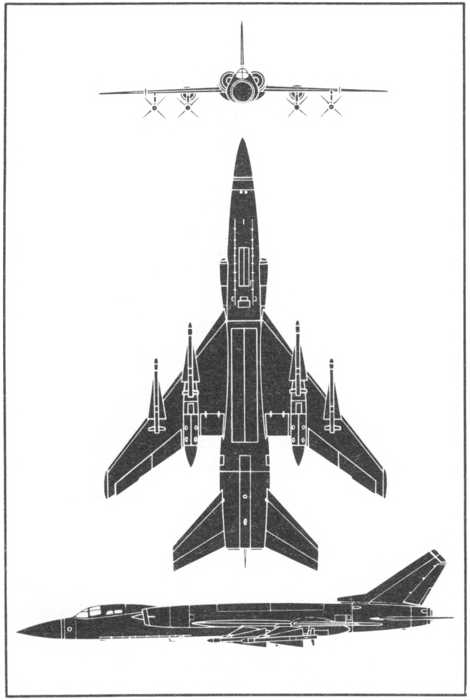


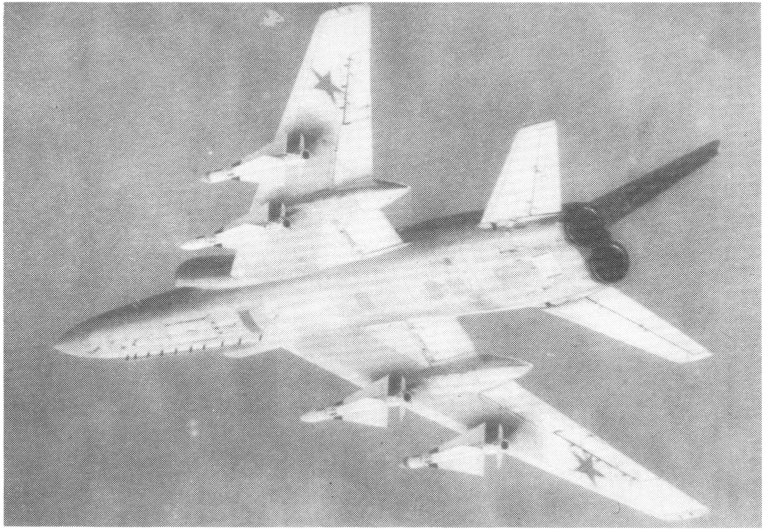
The successor to the Etendard IVM, the Super Etendard is a transonic single-seat strike fighter designed for operation from French aircraft carriers. The engine has increased thrust, a modern navigation/attack system is fitted and an Agave radar is housed in the nose. The wing has also been modified. Production deliveries began in 1978. A total of 71 have been acquired by the French Navy, plus 14 for the Argentinian Navy. As on the IVM, the gun armament consists of twin 30mm cannon. A variety of weapons, including Exocet anti-ship missiles, can be carried. A systems update programme is in progress with the title Super Etendard Modernisé. *Country of origin:* France.

Tupolev Tu-28P ‘Fiddler’

Confusion: ‘Fitter’

Power: 2 × Lyulka reheated turbojets *Span:* 19.8m *Length:* 27.43m



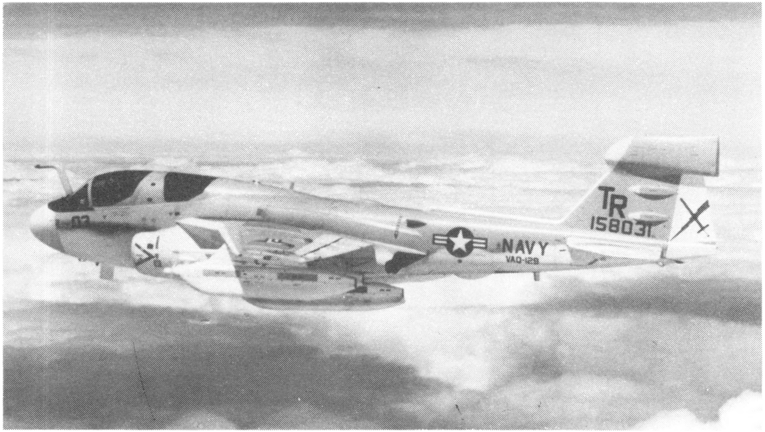


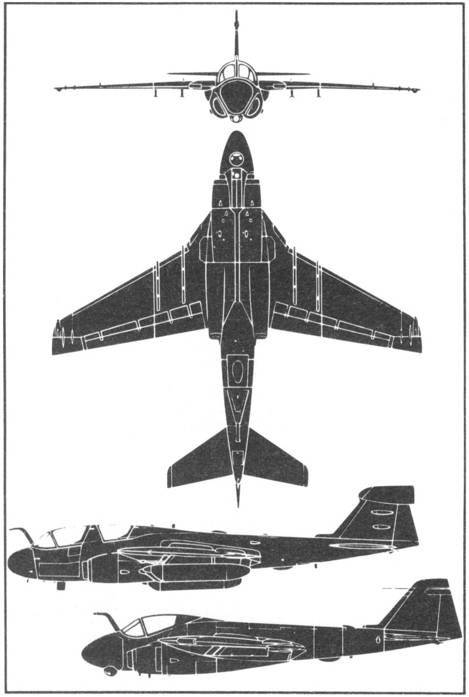
A long-range interceptor of massive size, the Tu-28P, code-named ‘Fiddler’, carries two crew, a large radar and up to four air-to-air missiles. As on many Soviet types, the main undercarriage retracts into blisters on the wing trailing edge. Although production is believed to have ceased in the late 1960s, ‘Fiddler’ remains in Russian Air Force service in specialist roles. Maximum speed is Mach 1.75 and range 4,989km. *Country of origin:* Russia

Confusion: Hunter

Grumman A-6 Intruder/Prowler

Power: 2 × J52 turbojets *Span:* 16.15m *Length:* (A-6E): 16.64m, (EA-6B): 18.11m



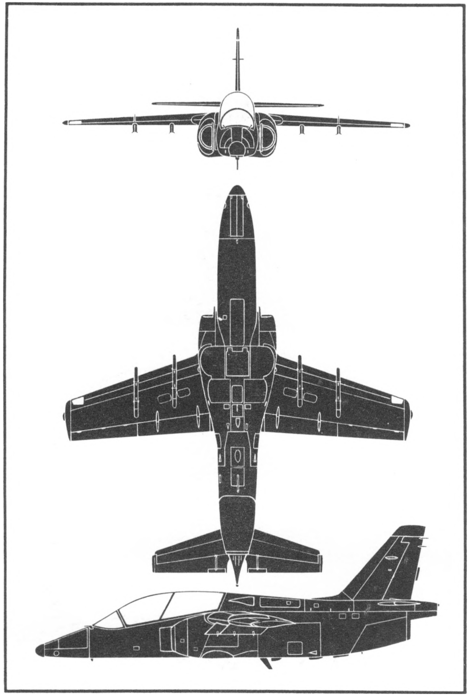


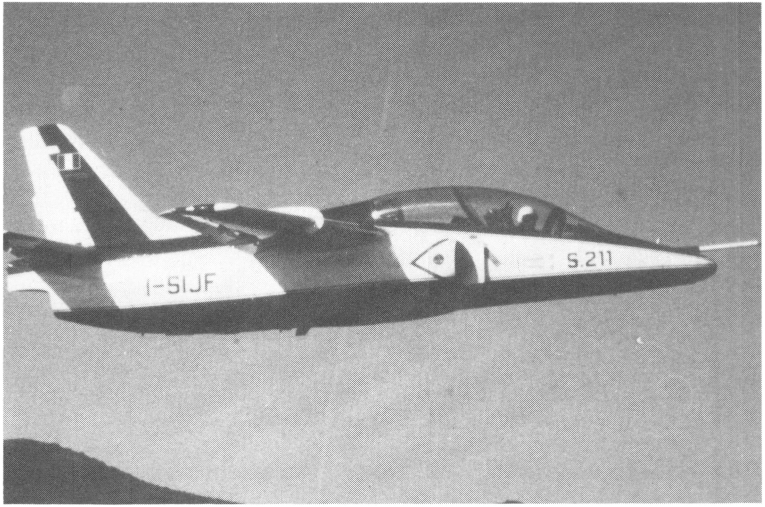
A highly versatile carrierborne aircraft, the Intruder was designed in the late 1950s as a two-seat, low-level, long-range attack bomber for the US Navy, being broadly equivalent to the Royal Navy's contemporary Buccaneer. In addition to its all-weather bombing role (A6A/B/E), the Intruder evolved during the Vietnam War as a tanker (KA-6D) and electronic warfare aircraft, the EA-6A/B Prowler. The last-mentioned differs from other models in having a large electronics pod mounted on the fin, while the EA-6B has accommodation for two additional EW operators in an extended nose. A missile and systems refit is designated A-6E SWIP. *Country of origin:* USA. *Main silhouette:* A-6E; *upper side view and picture:* EA-6B.

SIAI-Marchetti S.211

Confusion: Hawk, Ajeet

Power: 1 × JT15D turbofan *Span:* 8.43m *Length:* 9.31m



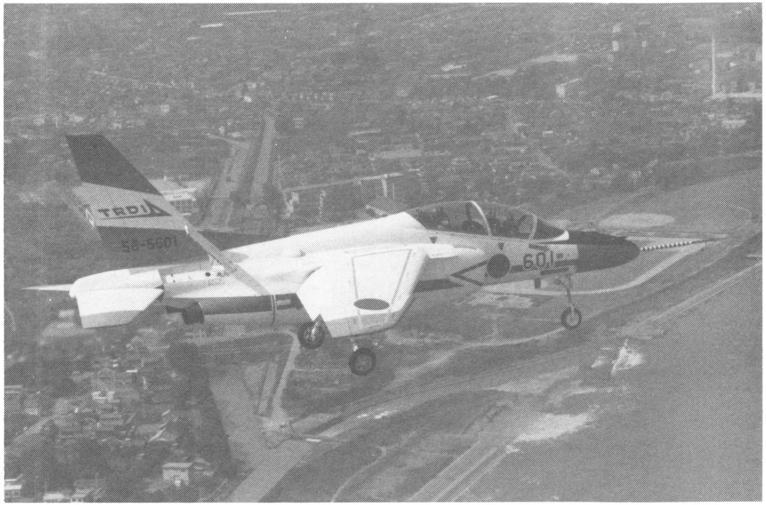


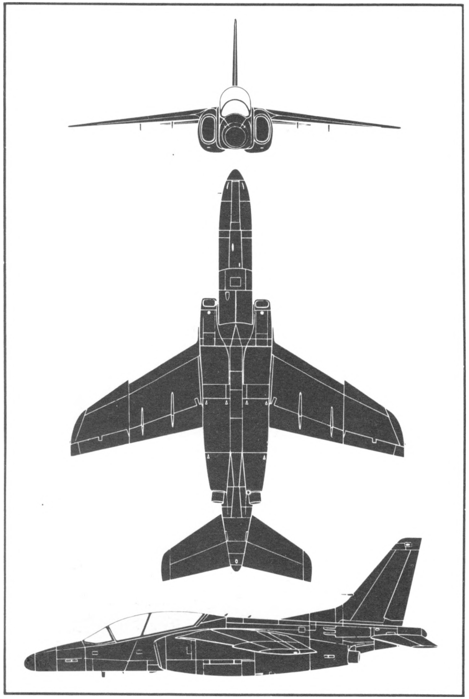
A low-cost lightweight jet basic trainer, the S.211 was developed as a private venture in Italy. The crew are seated in tandem and the four underwing hardpoints can carry bombs or rocket projectiles for weapon training. Maximum speed of the S.211 is 723km/h while maximum cruising range, with external tanks, is 2,693km. The prototype S.211 flew in April 1981 and deliveries to customers, in Singapore, the Philippines and Haiti, began in 1984. *Country of origin:* Italy.

Confusion: S.211, Super Galeb

Kawasaki T-4

Power: 2 × F3-IHI turbofans *Span:* 9.94m *Length:* 13m



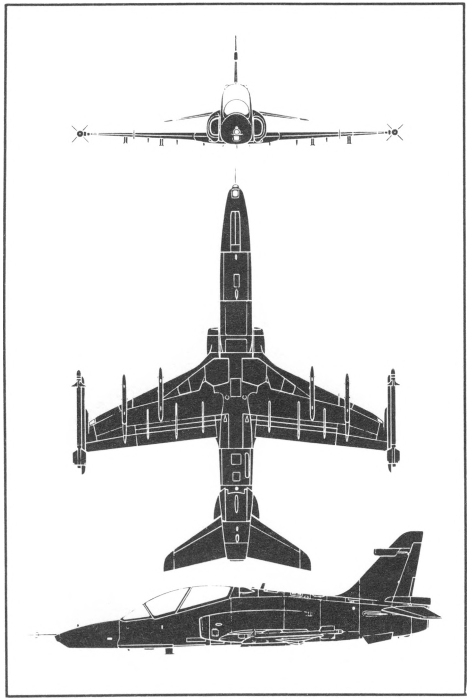


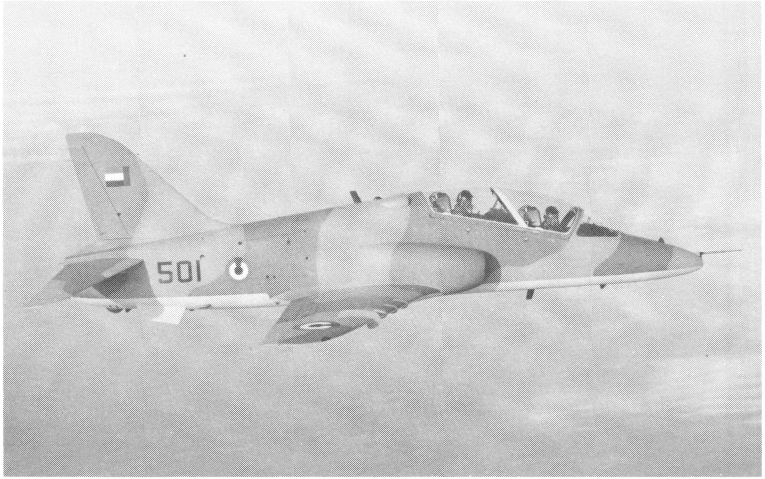
A tandem two-seat intermediate jet trainer, the Kawasaki T-4 is to replace ageing TI-A/B and T-33 aircraft in the Japanese Air Self-Defence Force. First flown in July 1985 as the XT-4, about 100 of the type are due to be built. Production deliveries commenced in September 1988. Various weapons can be carried on four underwing pylons. The T-4 has a maximum speed of Mach 0.9 and a range of 1,668km. *Country of origin:* Japan. *Silhouette and picture:* Kawasaki XT-4.

BAe Hawk 100

Confusion: Hunter, Etendard, S.211

Power: 1 × Adour turbojet *Span:* 9.94m *Length:* 12.43m



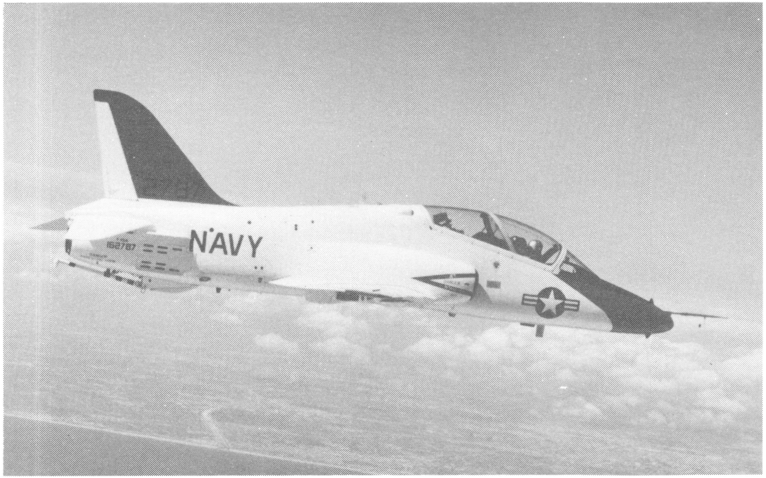


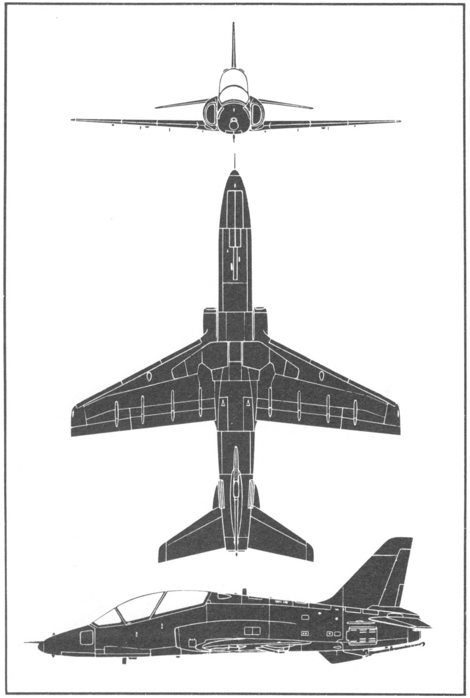
The very successful Hawk family has been steadily evolved since the Hawk T.1 first entered RAF service in 1976, through the Mk 50 series and the now standard export, Mk 60. Hawk 100 is an advanced two-seat weapons system trainer with enhanced ground attack capability and the more powerful Adour 871. The wing incorporates combat manoeuvre flap setting and there are seven wing-mounted weapons stations including wing-tip air-to-air missile launchers. Hawk 100 has a maximum level speed of 1,019km/h. *Country of origin:* UK. *Silhouette:* Hawk 100. *Picture:* Hawk Mk 61.

Confusion: Hawk, S.211, Etendard

McDonnell Douglas/BAe T-45A Goshawk

Power: 1 × Adour turbojet *Span:* 9.39m *Length:* 10.98m



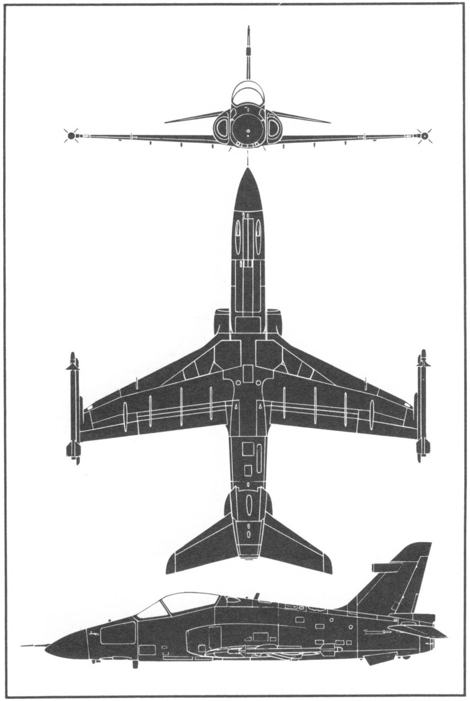


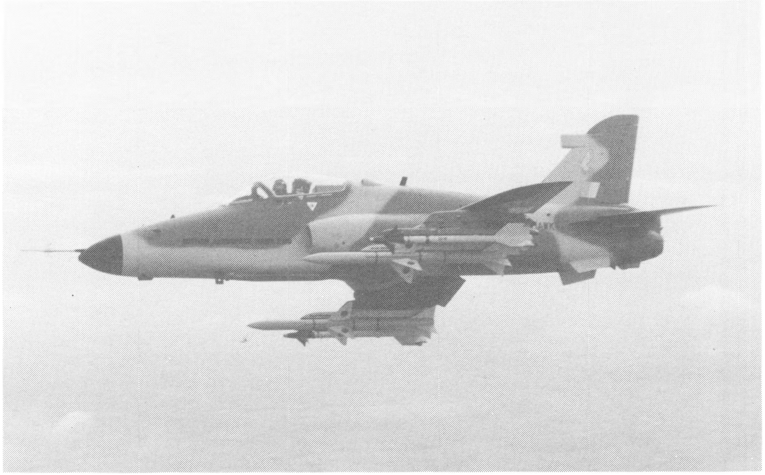
Selected by the US Navy as an undergraduate trainer to replace the TA-4J Skyhawk and T-2C Buckeye, the Goshawk is a derivative of the Hawk Mk 50 series. The rear fuselage has been deepened and lengthened, structure strengthened for carrier deck landings, tailplane span increased and new landing gear fitted. Wingtips have been squared off and single ventral fin added plus a deck hook. The prototype made its first flight in April 1988 and the US Navy requirement for the type was set at 300. Final assembly line is at McDonnell Douglas at St Louis. *Countries of origin:* UK/USA.

BAe Hawk 200

Confusion: Hawk 60, AMX

Power: 1 × Adour turbojet *Span:* 9.94m *Length:* 11.35m



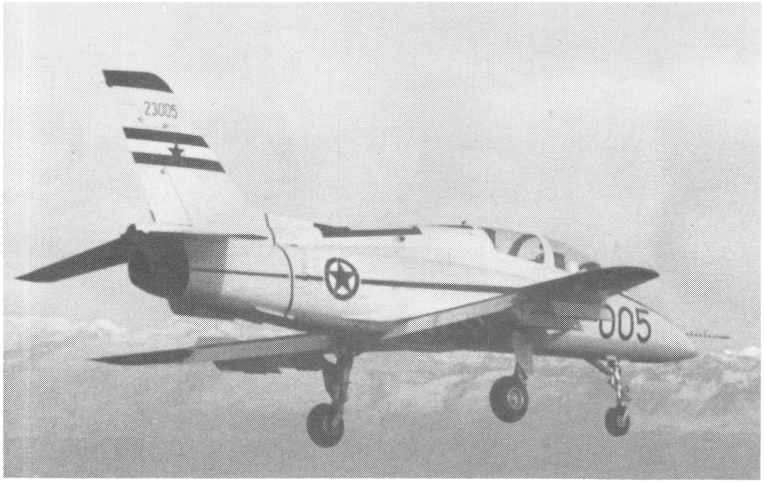


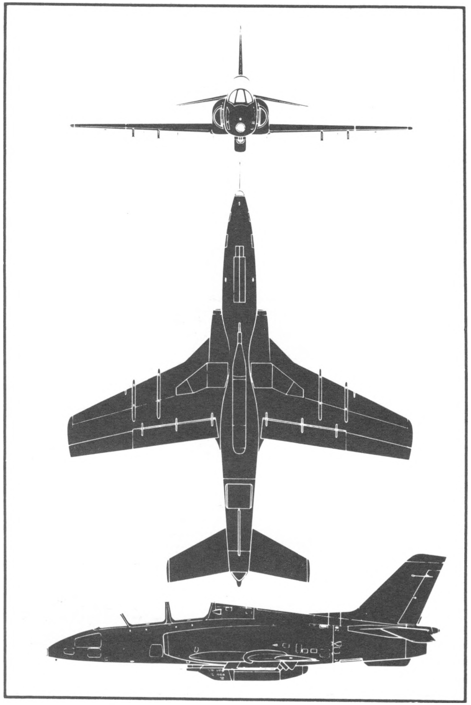
Hawk 200 is a single-seat lightweight multi-role combat development of the Hawk trainer. The nose has been modified to accommodate a multi-mode radar and, like the Hawk 100, wingtip-mounted air-to-air missile launchers can be fitted. Both Hawk 200 and 100 have comprehensive avionics systems including head-up display, weapon aiming computer and laser-based inertial platform. For combat air patrol, Hawk 200 has over two hours duration 185km from base, carrying four Sidewinder missiles and a 30mm Aden gun. *Country of origin:* UK.

Confusion: Hawk, S-211

SOKO G-4 Super Galeb

Power: 1 × Viper turbojet *Span:* 9.88m *Length overall:* 11.86m



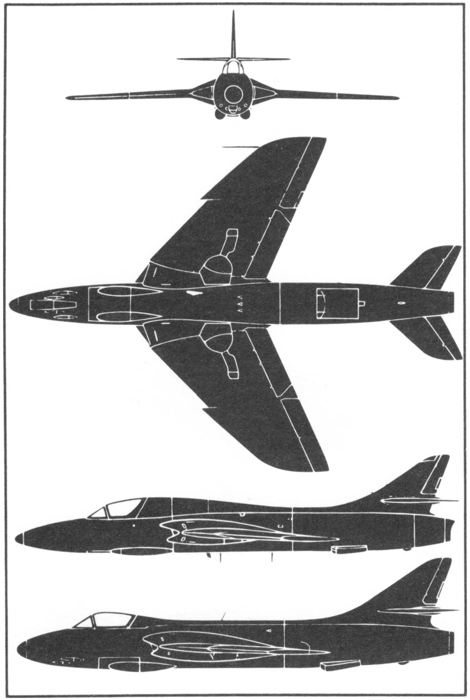


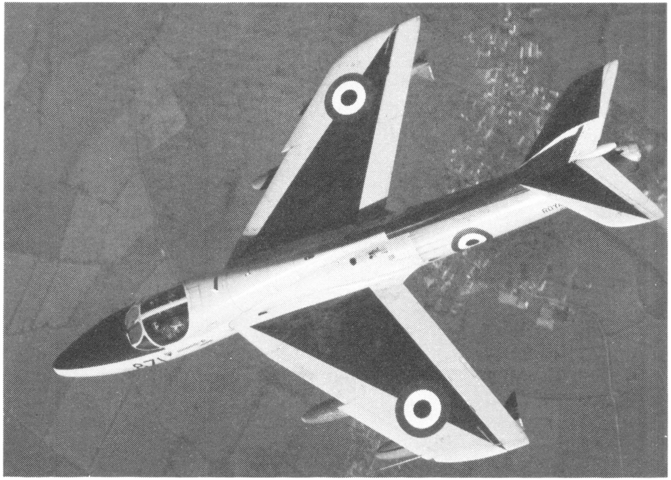
Designed to replace the Galeb and T-33 as the Yugoslav Air Force basic/advanced trainer, the two-seat Super Galeb (Seagull) first flew in July 1978. Powered by an uprated Viper engine, the Super Galeb can carry a 23mm cannon in a removable ventral pod and has four underwing stores points for rockets, bombs, fuel tanks etc. The aircraft was produced to meet major Yugoslav orders. Maximum speed is 910km/h and combat radius in the light attack role, at low level, is 300km. *Country of origin:* Yugoslavia.

BAe Hunter

Confusion: Hawk, Etendard

Power: 1 × Avon turbojet *Span:* 10.26m *Length:* 13.98m



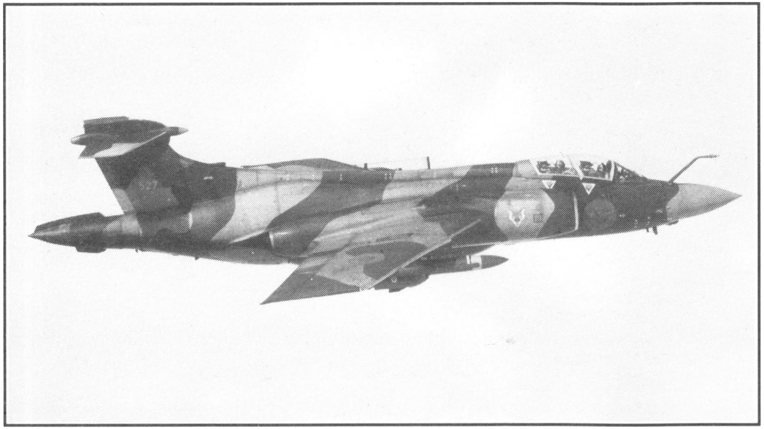


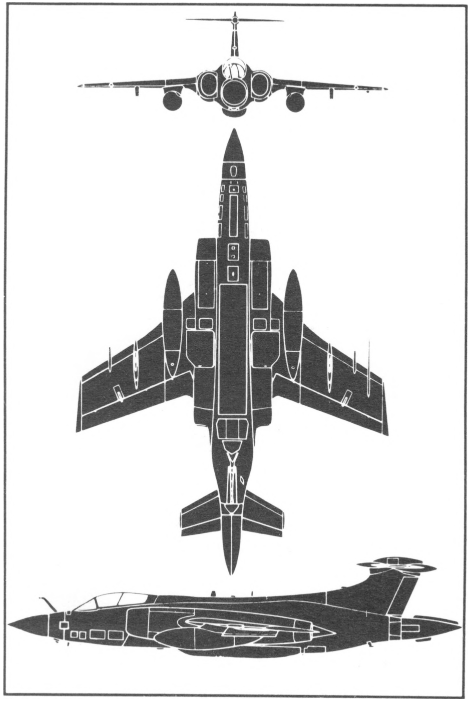
Undoubtedly the most successful and most numerous of post-war British fighter designs, with around 2,000 produced, the Hunter has been largely phased out by Western air forces, except some in Switzerland and the UK. Many remain in service in the Middle and Far East, Africa, India and South America, however. The RAF still uses Hunters in a variety of roles, including advanced training with the two-seat T7/T8. Hunters carry two internally mounted 30mm guns plus underwing rockets, bombs and fuel tanks. *Country of origin:* UK. *Main silhouette:* FGA9; *upper side view:* T7. *Picture:* T8.

Confusion: Jaguar, Phantom, Harrier, Saab 105

BAe Buccaneer

Power: 2 × Spey turbojets *Span:* 13.4m *Length:* 19.33m



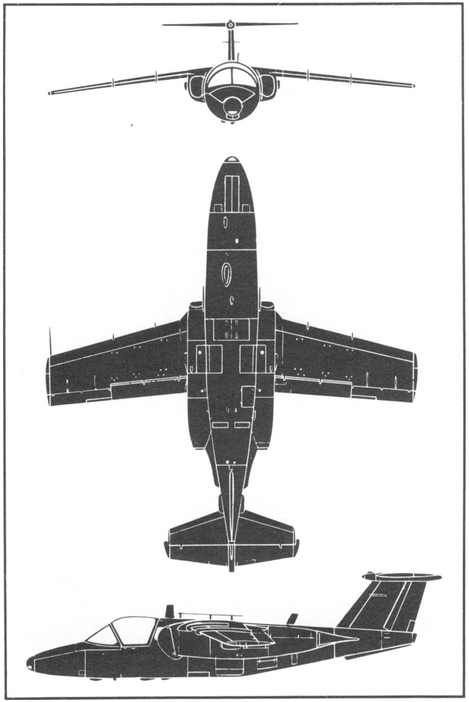


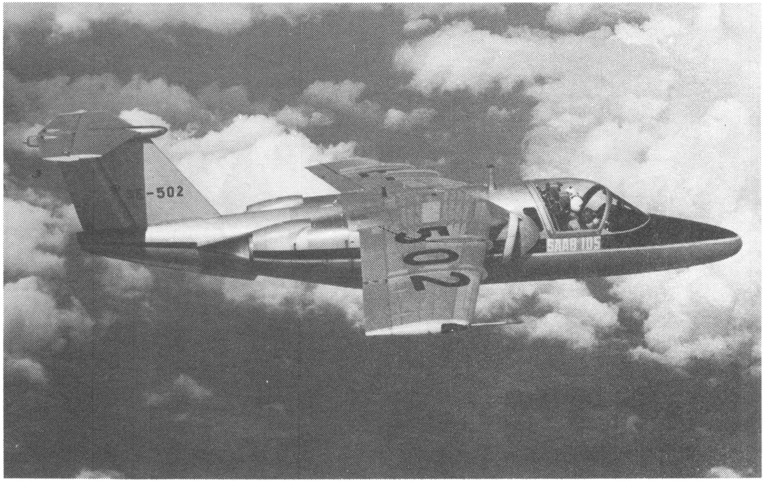
Originally built as a Royal Navy low-level, two-seat carrierborne strike/attack aircraft, the Buccaneer was later adopted by the RAF as a land-based type for the same purpose. First production aircraft (S1) had the Gyron Junior engine, but subsequent variants (S2) were powered by the Rolls-Royce Spey. The RAF is now the sole Buccaneer operator but it intends to replace the type by Tornados before 1995. Armament is carried internally and on four wing pylons. Bullpup, Sea Eagle or Martel missiles can be carried. Buccaneer performance is characterised by outstanding stability at low level and high speed. *Country of origin:* UK. *Silhouette and picture:* S2.

Saab 105

Confusion: Buccaneer

Power: 2 × Aubisque or 2 × J85 turbojets *Span:* 9.5m *Length:* 10.5m



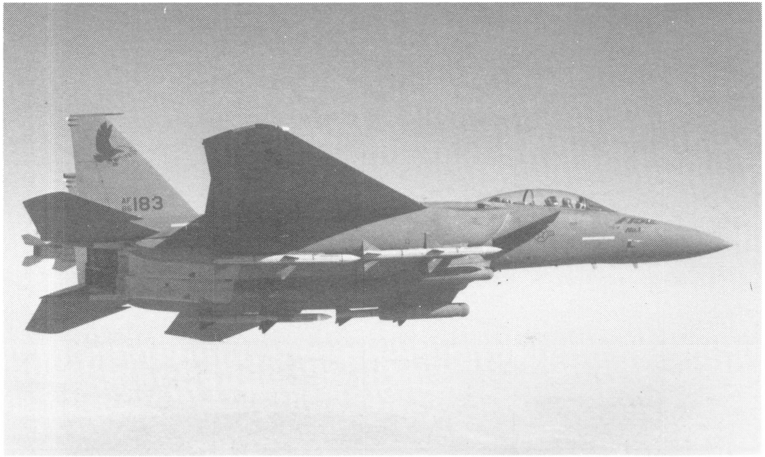


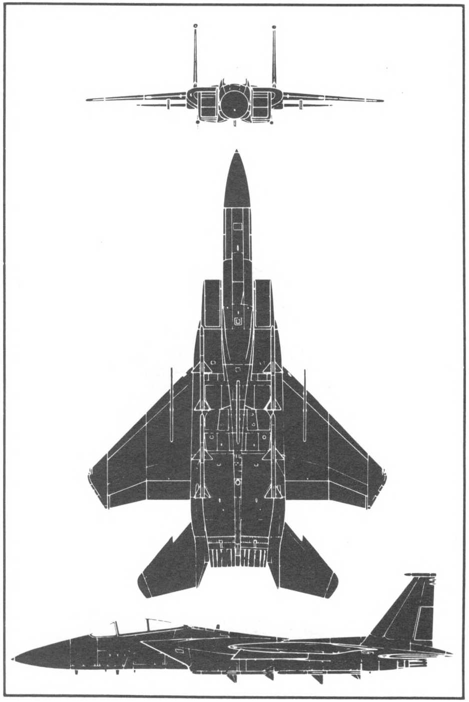
Produced in the 1960s as a standard basic trainer for the Royal Swedish Air Force, the two-seat 105 is unusual in having a shoulder wing and T-tail. Four versions have been built: the Sk60A for training, Sk60B for weapons training/light attack, Sk60C for reconnaissance (all with Turboméca Aubisque engines), and the 105XT exported to Austria with General Electric J85 engines. The Sk60C has a longer nose than other variants. Some one hundred and sixty 105s are in service. *Country of origin:* Sweden. *Main silhouette and picture:* Sk60A.

Confusion: Tomcat, 'Foxbat', 'Fulcrum', 'Flanker'

McDonnell Douglas F-15 Eagle

Power: 2 × F100 reheated turbojets *Span:* 13.04m *Length:* 19.44m



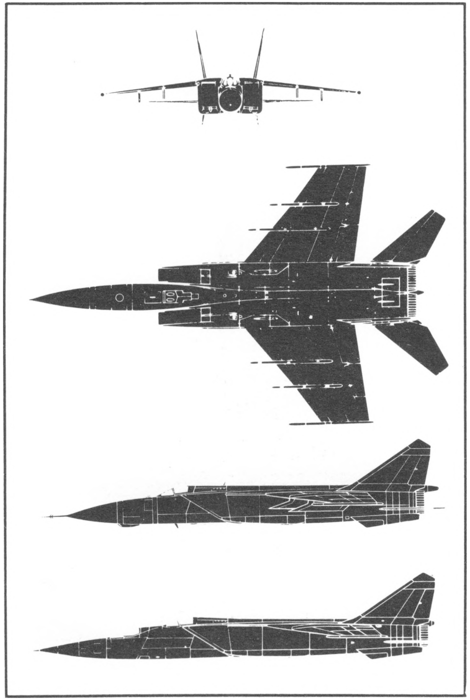


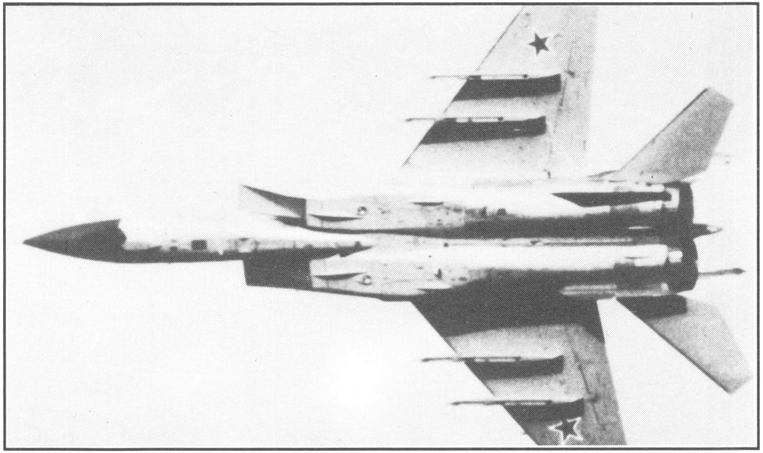
A sophisticated single-seat, all-weather air-superiority fighter, the F-15 Eagle has a performance in excess of Mach 2 at altitude. In addition to a rotary cannon in the fuselage, the F-15 can carry four Sparrow and four Sidewinder air-to-air missiles. Operating in the USA and Europe with the USAF, the F-15 has also been sold to Israel, Japan and Saudi Arabia. First production aircraft flew in 1974. Standard production single-seaters and two-seaters are F-15C and F-15D respectively. A dual role two-seater (air intercept and ground attack) is the F-15E of which 200 are scheduled to be built. *Country of origin:* USA. *Silhouette:* F-15. *Picture:* F-15E.

Mikoyan MiG-25 'Foxbat'

Confusion: Tomcat, Eagle, 'Foxhound'

Power: 2 × Tumansky reheated turbojets *Span:* 12.5m *Length:* 21.33m

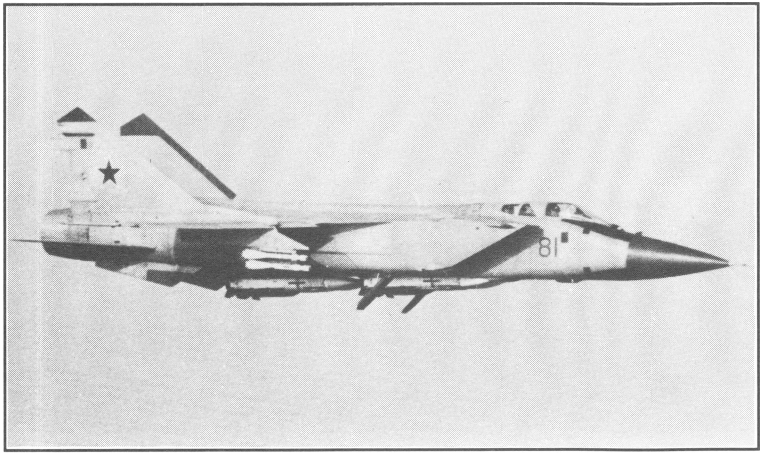


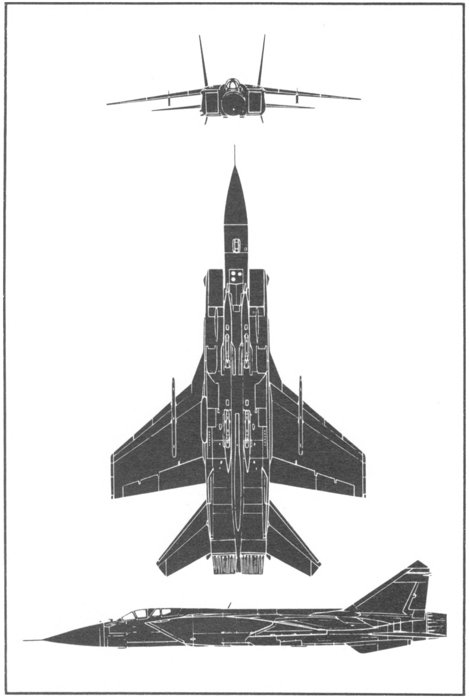


A high-performance interceptor, the MiG-25 'Foxbat' is capable of speeds of between Mach 2.5 and 3.0. Because of its very high speed and 24,400m ceiling 'Foxbat' presents a problem to any air-defence system. MiG-25P 'Foxbat A' is an interceptor with a large nose radar and four underwing air-to-air missiles. MiG-25R 'Foxbat B' and 'D' are reconnaissance variants. MiG-25U 'Foxbat C' is a two-seat trainer and MiG-25PDS 'Foxbat E' is a development of the 'A' with new radar and uprated engines. MiG-25BM 'Foxbat F' is an electronic warfare variant. *Country of origin:* Russia. *Main silhouette:* 'Foxbat A'; *lower side view:* 'Foxbat C'. *Picture:* 'Foxbat E'.

Mikoyan MiG-31 'Foxhound'

Power: 2 × Tumansky reheated turbojets *Span:* 14m *Length:* 21.5m



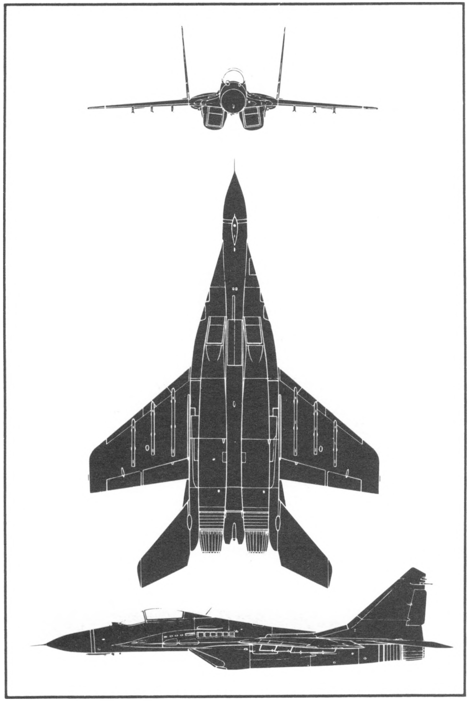


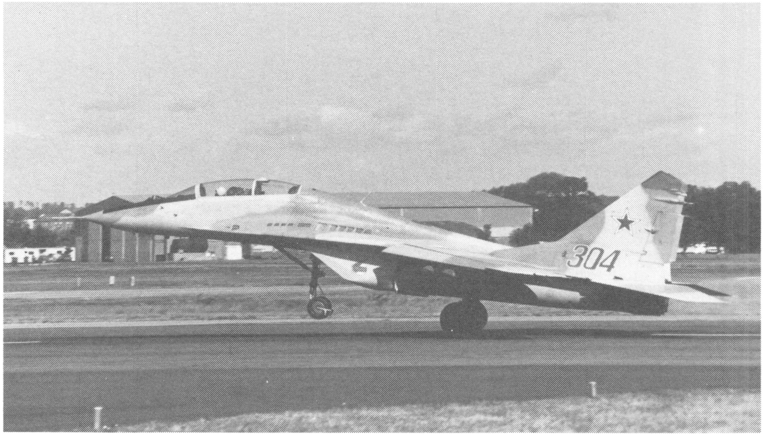
A two-seat development of the 'Foxbat', the MiG-31 'Foxhound' Mach 2.4 interceptor has a new radar, modified fuselage and revised wing shape. Having a full look down/shoot down capability, the type is believed to have entered service in 1983 and is now operational in strength. Four AA-9 Amos radar homing long range air-to-air missiles can be carried under the fuselage. A further four AA-9s or smaller weapons can be mounted on wing pylons. MiG-31M 'Foxhound-B' is an improved version with a deeper dorsal spine, small rear cockpit side windows and curved wingtips. *Country of origin:* Russia.

Mikoyan MiG-29 'Fulcrum'

Confusion: F-15, 'Flanker', Hornet, 'Foxbat'

Power: 2 × Tumansky reheated turbofans *Span:* 11.5m *Length (overall):* 17.2m



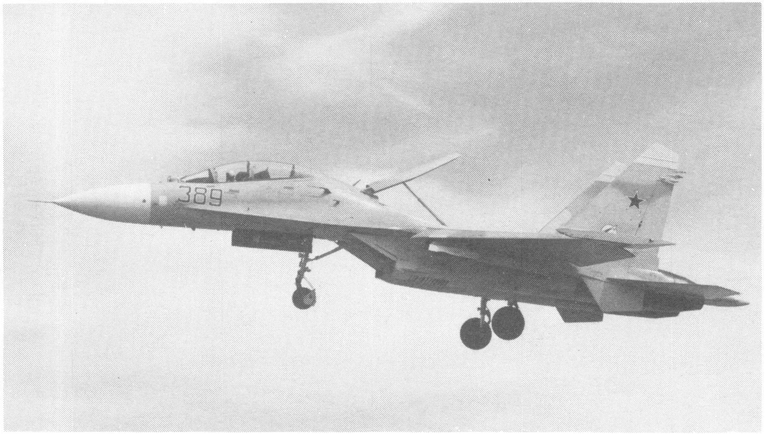


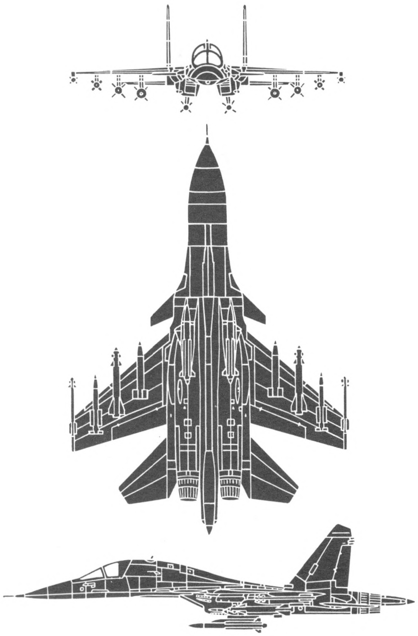
Similar in size and layout to the F-18 Hornet, the MiG-29, code-named 'Fulcrum', was first flown in 1977. It is an all-weather single-seat interceptor first deployed in the Soviet Union early in 1985. The 'Fulcrum' is capable of speeds in excess of Mach 2 and has a combat radius of 1,150km. It carries medium and short range air-to-air missiles, rockets or bombs on six underwing pylons. A 30mm cannon is mounted in the port wingroot. Basic version is 'Fulcrum-A', two-seat trainer is MiG-29UB 'Fulcrum-B', curved top fuselage variant is 'Fulcrum-C' and carrierborne version MiG-29K 'Fulcrum-D'. *Country of origin:* Russia. *Silhouette:* 'Fulcrum-A'. *Picture:* 'Fulcrum-B'.

Confusion: F-15, Hornet, 'Foxbat'

Sukhoi Su-27 'Flanker-B'

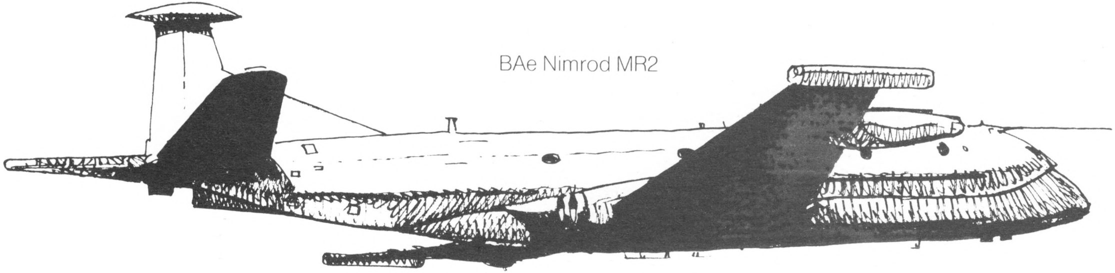
Power: 2 × AL-31F reheated turbofans *Span:* 14.7m *Length:* 21.93m



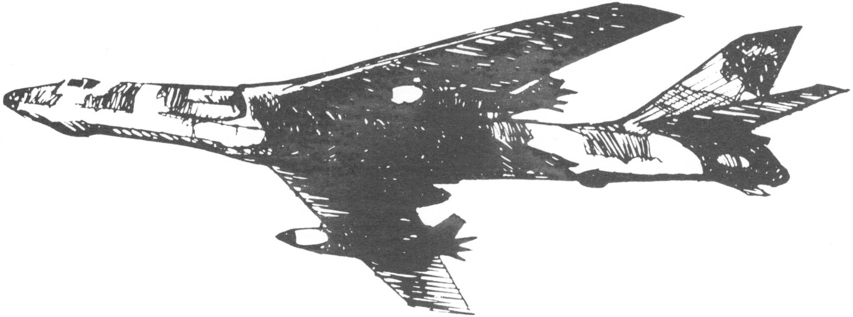


A powerful all-weather air superiority single-seat fighter aircraft, the Su-27 code-named 'Flanker-B' is in full scale service with the air forces of the CIS. It has a look down/shoot down radar and is armed with a 30mm gun and up to 10 air-to-air missiles, including AA-8, AA-10 and AA-11. First flight was in April 1981. Speed is Mach 2.35 and combat radius 1,500km. Tandem two-seat trainer version is Su-27UB ('Flanker-C'), a side-by-side attack variant is Su-27IB and a carrierborne fighter is Su-27K ('Flanker-D'). A late development is Su-27M with fly-by-wire control system and updated avionics. *Country of origin:* Russia. *Main silhouette:* 'Flanker-B'; *lower side view:* 'Flanker-C'. *Picture:* 'Flanker-C'.

Jet, swept wing, flank/root engine(s)



BAe Nimrod MR2

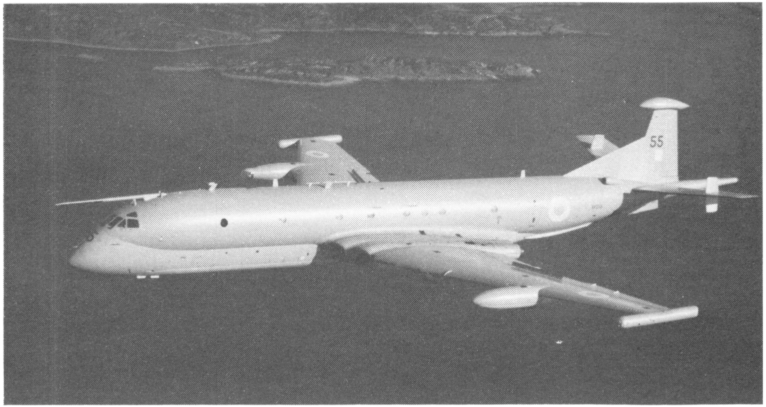


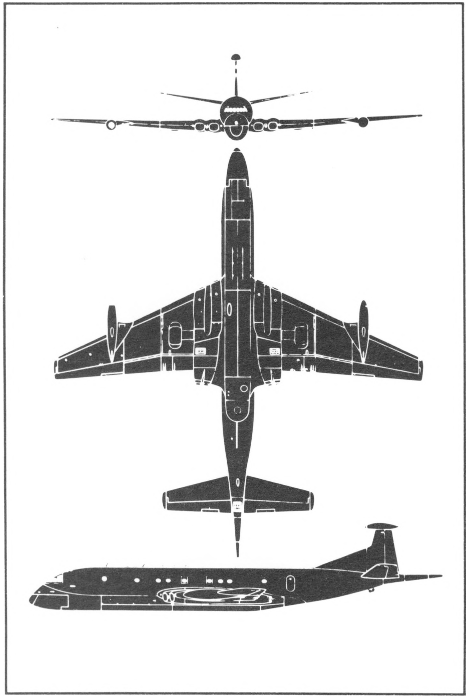
Tupolev Tu 16 'Badger'

Confusion: Nimrod AEW3

BAe Nimrod MR2

Power: 4 × Spey turbofans *Span:* 35m *Length:* 38.63m



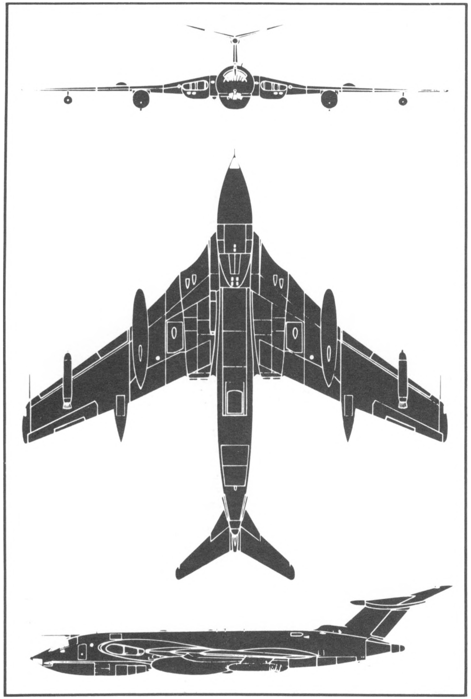


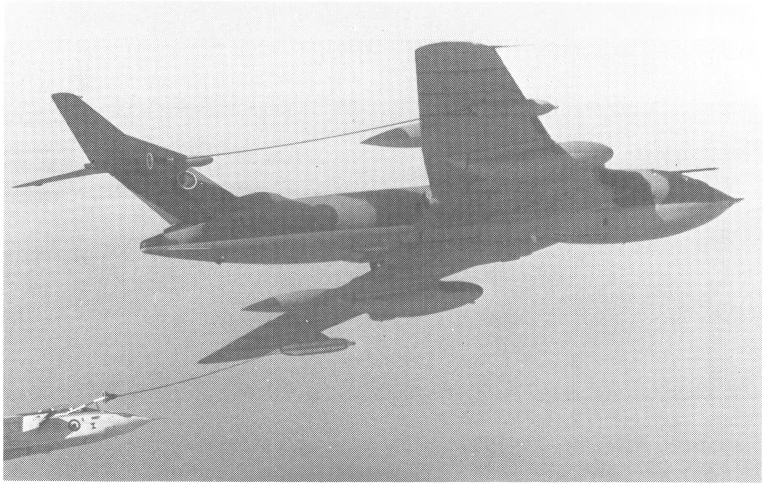
Developed from the basic Comet airframe, the Nimrod MR2 is the RAF's standard long-range maritime reconnaissance aircraft. Capable of up to 12h endurance and a maximum speed of 926km/h, the Nimrod is one of the most advanced anti-submarine aircraft in the West. Three Nimrod R1s are used for electronic surveillance. The R1 has a cut-off fuselage tail extension and small inset fins on the tailplane. Armament of the maritime reconnaissance variants includes bombs, mines, depth charges, Stingray torpedoes and Sidewinder and Harpoon missiles. Following a systems update, the MR2s have wingtip ESM pods, finlets on the tailplane and a small rear underkeel. With an inflight refuelling probe, they are known as MR2P. *Country of origin:* UK. *Silhouette:* MR2. *Picture:* MR2P.

BAe Victor

Confusion: 'Badger', 'Bison'

Power: 4 × Conway turbofans *Span:* 36.58m *Length:* 35m



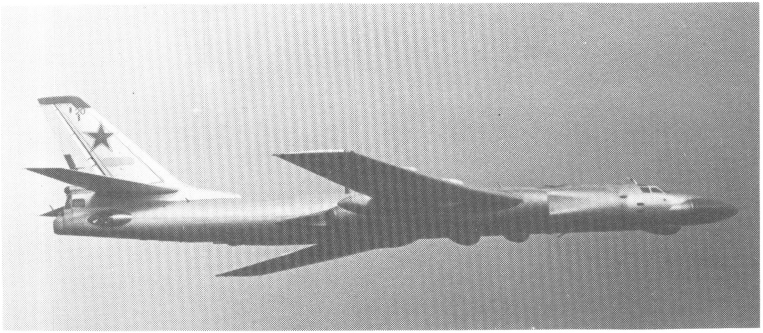


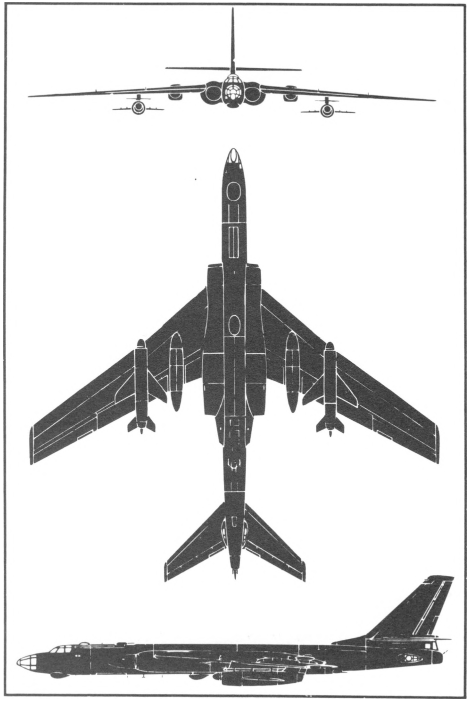
One of the three V-bombers which formed the British nuclear deterrent force of the 1950s and 1960s, the Victor was unusual in having a crescent-shaped wing leading-edge and high-set tailplane. The B1 had Sapphire engines while the B2 has Rolls-Royce Conways. The Victors in RAF service are all K2 tankers. Three aircraft can be refuelled simultaneously through hoses trailed from the belly and pods under the wings. The Victor is scheduled to be phased out of RAF service by end 1993. *Country of origin:* UK. *Silhouette and picture:* K2.

Confusion: 'Bison'

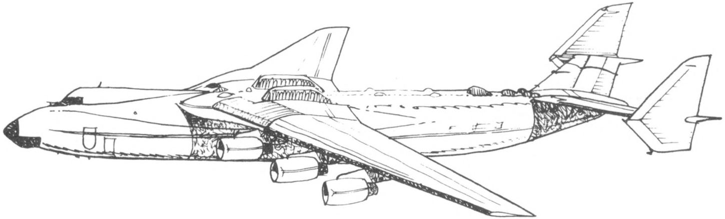
Tupolev Tu-16 'Badger'

Power: 2 × Mikulin turbojets *Span:* 32.93m *Length:* 34.8m

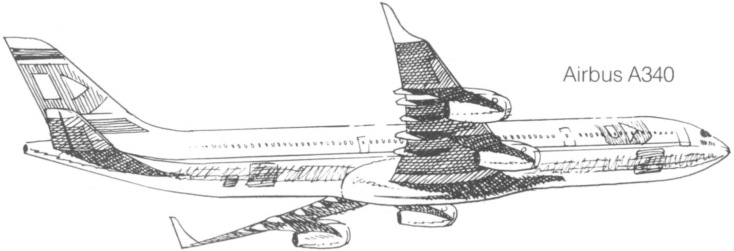




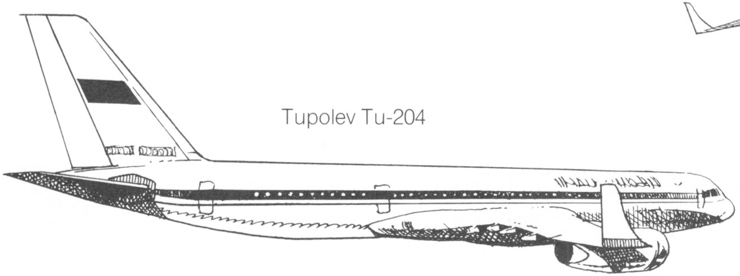
First put into service in the mid-1950s as a bomber, the 960km/h Tu-16 'Badger' remains in use with CIS maritime squadrons. Used for overwater surveillance and electronic intelligence-gathering, the 'Badger D' has a long nose radome and three underfuselage blisters. 'Badger E' and 'F' have glazed noses, the 'E' mounting only two blisters and having a belly camera, and 'F' having an electronic equipment pod under each wing. 'Badgers C' and 'D' carry 'Kingfisher' air-to-surface missiles under the wings or a 'Kipper' missile under the fuselage. 'Badgers H' and 'J' are used for ECM work. 'Badger K' is an electronic reconnaissance variant. 'Badgers' use air-to-air refuelling and some act as tankers. There are twin tail guns. Maximum range with the maximum bomb load of 9,000kg is 4,800km, increasing to 6,400km with 3,000kg at 770km/h. *Country of origin:* Russia. *Silhouette:* 'Badger C'. *Picture:* 'Badger D'.



An-225



Airbus A340

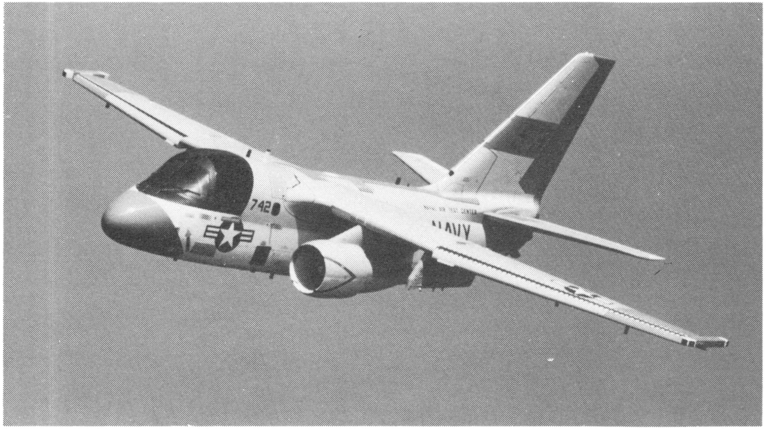


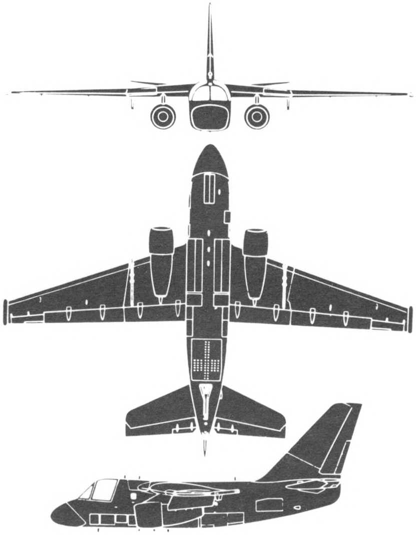
Tupolev Tu-204

Confusion: Skywarrior, C-1A

Lockheed S-3A/3B 'Viking'

Power: 2 × TF34 turbofans *Span:* 20.93m *Length:* 16.26m



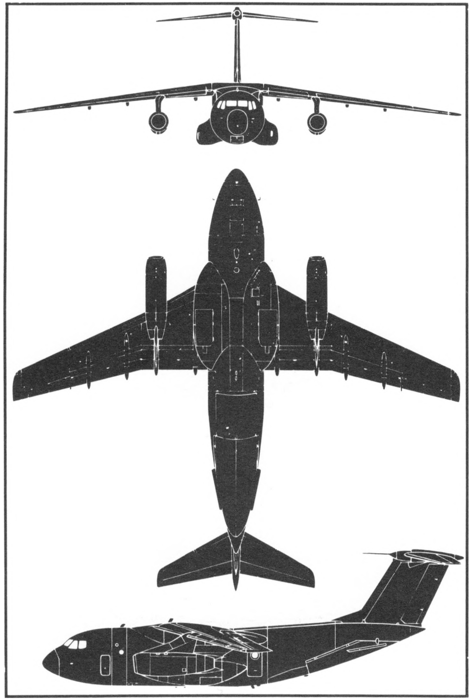


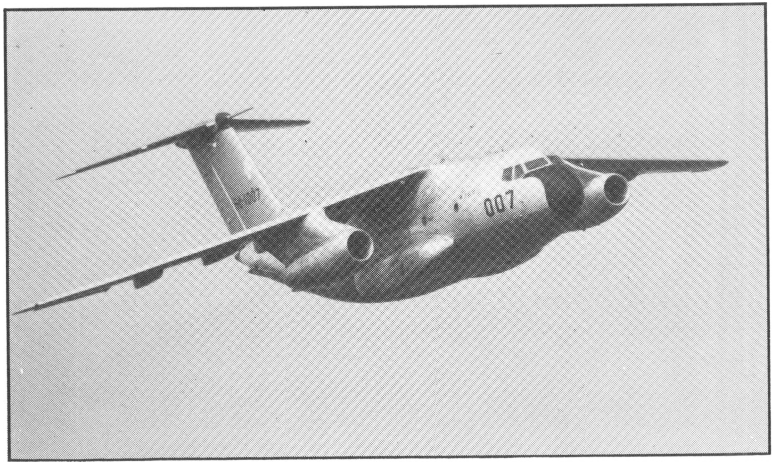
A highly sophisticated carrierborne anti-submarine aircraft, the S-3A Viking has podded turbofans and top speed of 816km/h. The fuselage weapons bay carries torpedoes, depth charges or mines, while weapons or fuel tanks can be carried on wing pylons. Four crew members are carried. A carrier on-board delivery (COD) version is designated US-3A and an inflight refuelling type, the KS-3A. The prototype of the US-3A, produced by modifying a development S-3A, first flew in 1976. S-3As are being modified as S-3Bs with new radar, improved electronic systems and Harpoon anti-ship missiles. ES-3A is an electronic reconnaissance variant. *Country of origin:* USA. *Silhouette:* S-3A. *Picture:* S-3B.

Kawasaki C-1A

Confusion: Viking, Skywarrior, Destroyer

Power: 2 × JT8D turbofans *Span:* 30.6m *Length:* 29m



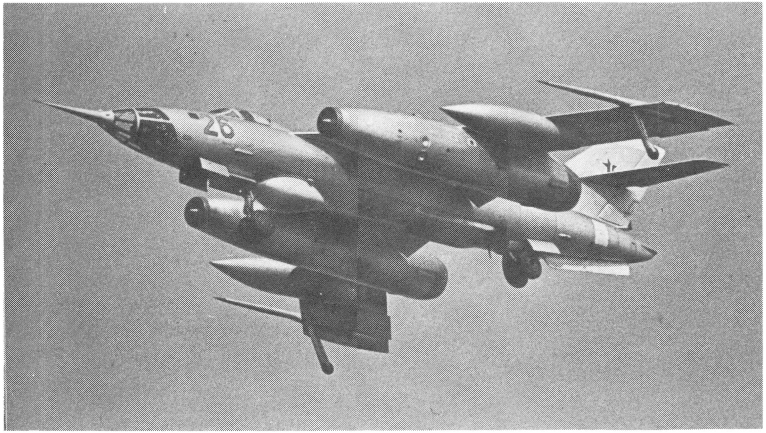


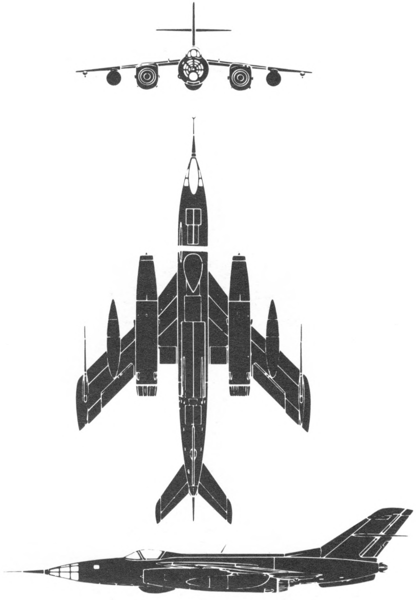
A medium-range tactical transport, the C-1A equips the Japan Air Self-Defence Force. Up to 60 troops or vehicles/freight, loaded via the rear doors and ramp, can be carried. A total of 24 C-1As were delivered, in addition to two prototypes and two pre-production models. Maximum speed is 787km/h and range with full payload 1,295km. At reduced payload 2,200kg and with maximum fuel, range increases to 3,353km. One C-1, designated C-1 Kai, has been fitted with larger flat radomes in nose and tail for ECM purposes. *Country of origin:* Japan.

Confusion: 'Flashlight', 'Firebar'

Yakovlev Yak-28 'Brewer'

Power: 2 × Tumansky reheated turbojets *Span:* 12.05m *Length:* 21.34m



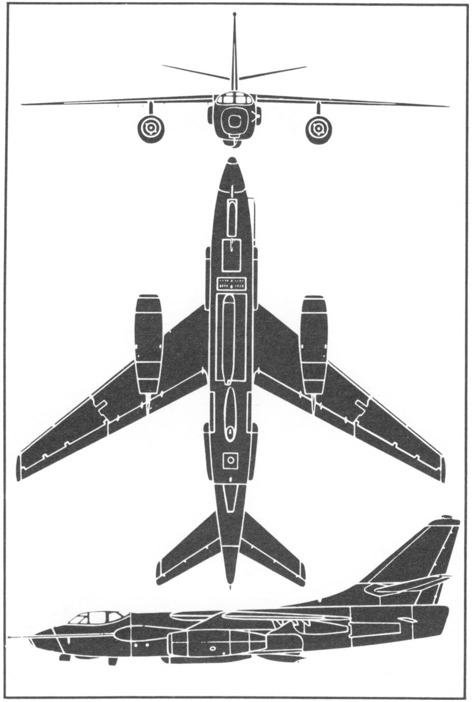


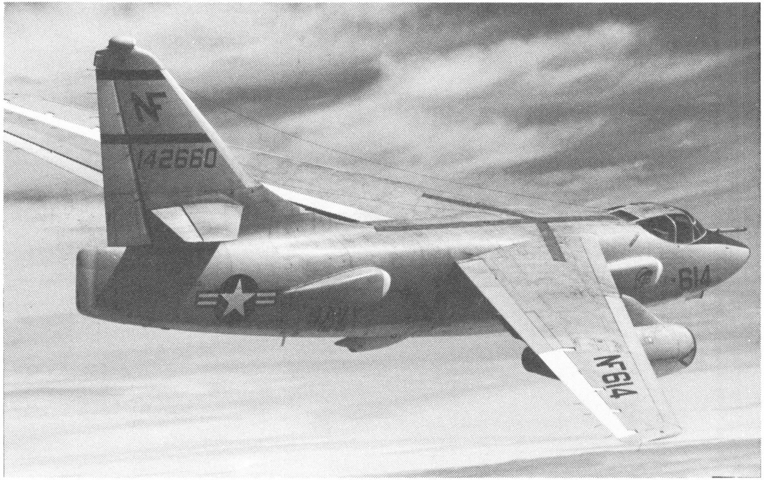
A redesigned higher powered successor to the earlier 'Flashlight', 'Brewer' has a glazed nose similar to that of an interim reconnaissance variant, the Yak-27R 'Mangrove', which differed little externally. 'Brewer' is a reconnaissance 'D' and electronic countermeasures 'E' aircraft. A key task of 'Brewers' now in Russian service is electronic warfare, for which a variety of sensors are housed in fuselage blisters. The trainer version is the Yak-28U, code-named 'Maestro', which has an additional cockpit forward of the main position and no glazing on the nose. *Country of origin:* Russia. *Silhouette and picture:* 'Brewer D'.

Douglas A-3 Skywarrior

Confusion: Viking, C-1A

Power: 2 × J57 turbojets *Span:* 22.10m *Length:* 23.27m



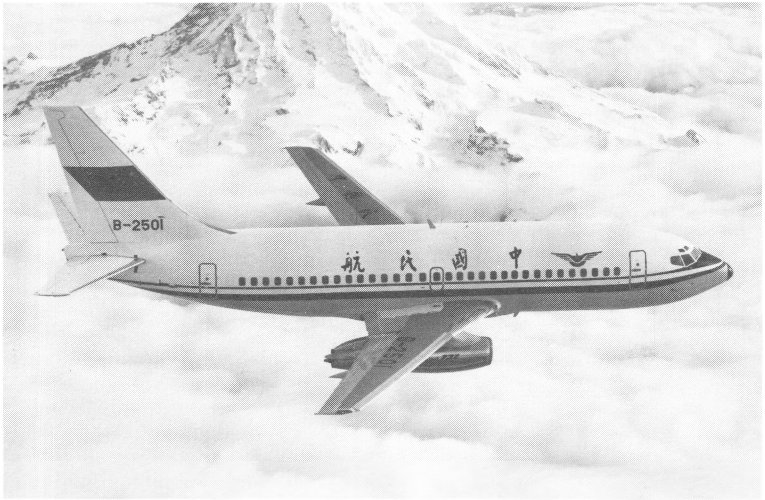


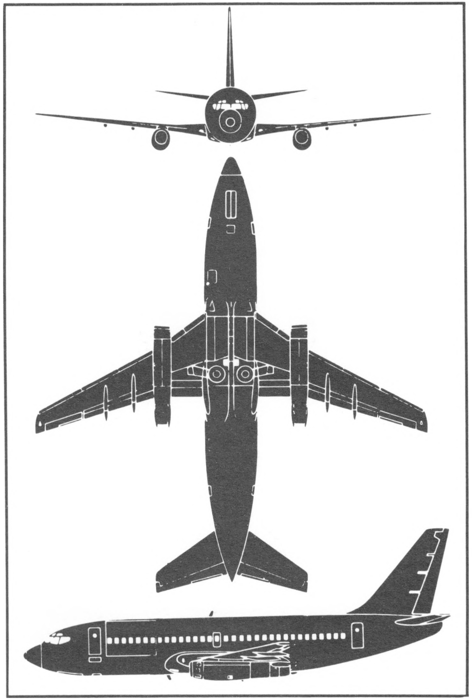
Introduced in the 1950s and originally used as a standard US Navy bomber, the Skywarrior now performs the electronic countermeasures and tanker roles. The ECM version, with a variety of fuselage bulges housing special equipment, is known as the EKA-3B. The airborne tanker is designated KA-3B. The original armament of two 20mm cannon in the tail has been deleted from the present versions, which are conversions of earlier bomber/reconnaissance aircraft. Some 30 Skywarriors are still in service. *Country of origin:* USA. *Silhouette and picture:* EKA-3B.

Confusion: A300, A310, 757, 767

Boeing 737-100/200

Power: 2 × JT8D turbofans *Span:* 28.35m *Length:* 30.48m



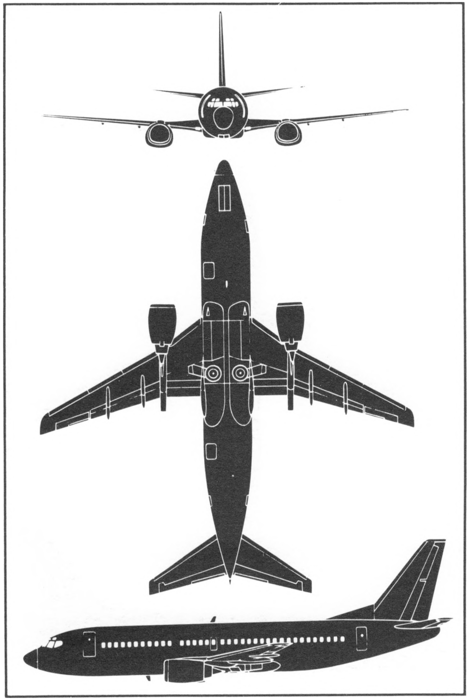


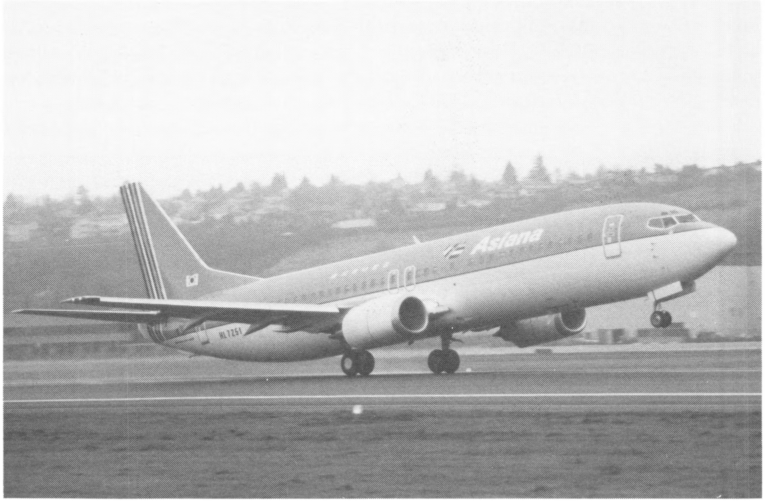
A very successful short/medium-haul transport, this type first entered service with Lufthansa in 1967 as the 115-seat 737-100. Seating was subsequently increased to 130 in the 737-200, a variant which has sold in large numbers round the world. Nineteen 737s designated T-43A were delivered to the USAF as navigation trainers. The 737-200 can fly 3,815km with maximum payload. Maximum cruising speed is 927km/h. *Country of origin:* USA. *Silhouette and picture:* 737-200.

Boeing 737-300/400

Confusion: 737-200, A310, 767

Power: 2 × CFM56 turbofans *Span:* 28.88m *Length:* (-300): 33.4m, (-400): 36.45m



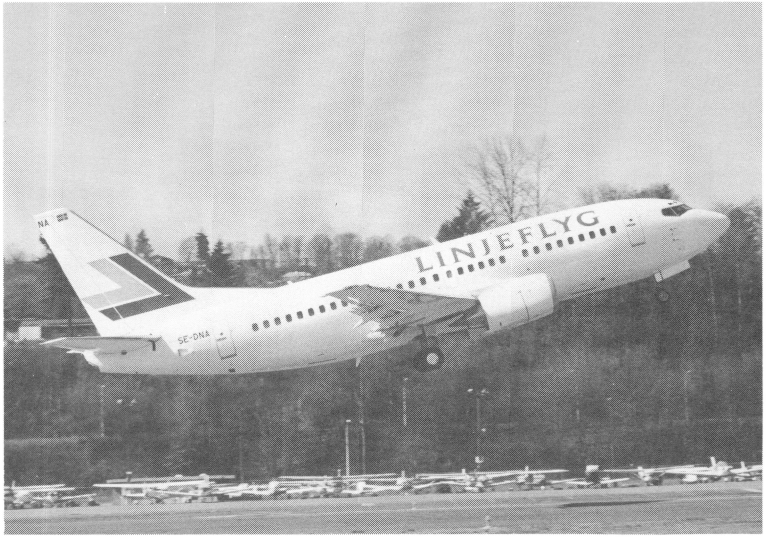


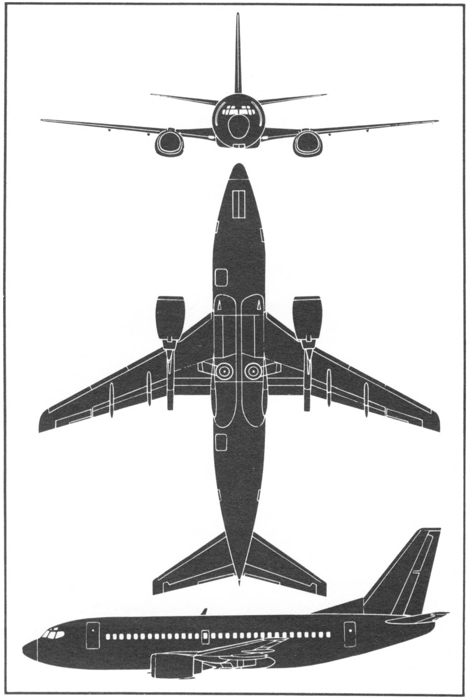
The 737-300 and -400 differ from the -200 in wing and tailplane span, fuselage length, fin outline and engine nacelle shape. The -300 seats up to 149 passengers and the -400, up to 170. Fuselage length is increased by 3.05m on the -400. The -300 first flew in February 1984 and the -400 in February 1988. Over 1,250 orders were placed for 737-300/-400 aircraft. With 141 passengers, at normal weight, the -400 has a range of 2,993km. *Country of origin:* USA. *Silhouette:* -300. *Picture:* -400.

Confusion: 737-200/300/400, A310, 767

Boeing 737-500

Power: 2 × CFM56 turbofans *Span:* 28.88m *Length:* 36.45m



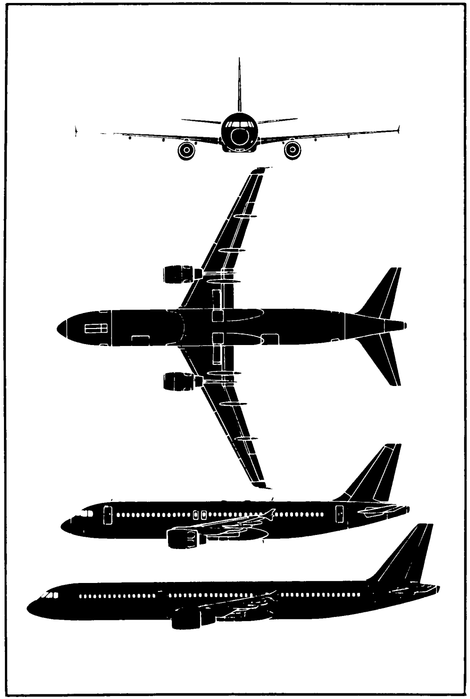


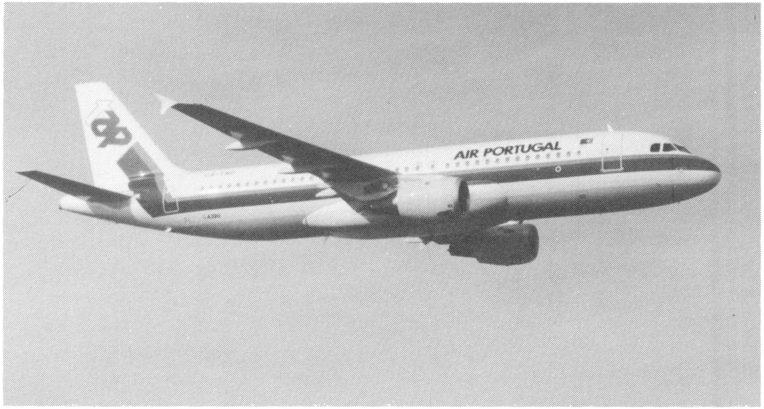
A combination of 737-300 and -400 technology and a shortened fuselage, the -500 accommodates 108 passengers and has, with auxiliary fuel tanks, a maximum range of 5,552km. The -500, in effect, replaces the earlier -200. Firm, announced, orders by December 1991, totalled 241 and first deliveries commenced in February 1990. *Country of origin:* USA.

Airbus A320

Confusion: A300, A310, 737, 767

Power: 2 × CFM56 or 2 × V2500 turbofans *Span:* 33.91m *Length:* 35.75m



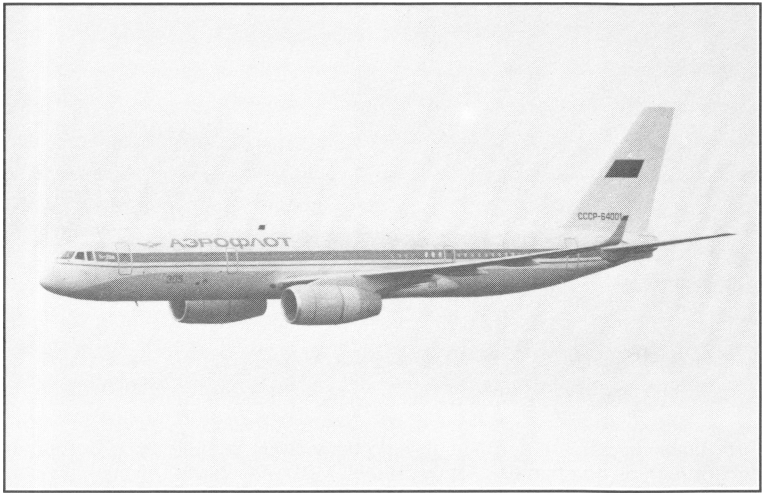


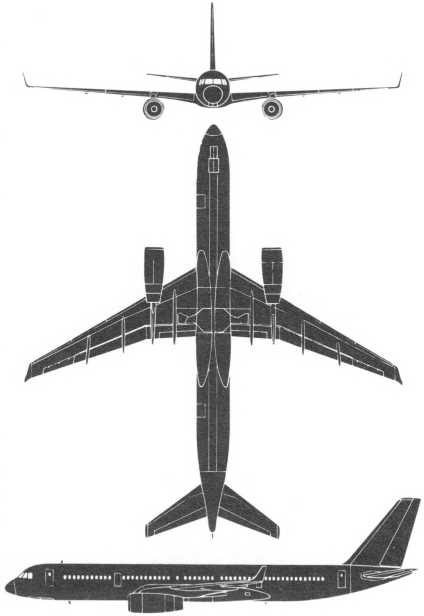
Using advanced design techniques, materials and avionics, the Airbus A320 represents a new class of short/medium-range twin jet airliners. First flown in February 1987, the 150-179 seat A320 is built jointly by Aerospatiale in France, MBB (Deutsche Airbus) in Germany, and British Aerospace PLC in the United Kingdom. At the time of writing the order book stood at 659. The A320 has a fly-by-wire control system and side stick controllers in place of the usual control columns in the cockpit. Range with CFM56 engines and 150 passengers is 5,318km. A321 is a stretched version of the A320 seating 186 passengers. A total of 140 have been ordered. *Countries of origin:* France/Germany/Belgium/Spain/UK plus other associated countries. *Main silhouette:* A320; *lower side view:* A321. *Picture:* A320.

Tu-204

Confusion: A320, Boeing 757

Power: 2 × PS-90 or RB 211 turbofans *Span:* 42.0m *Length:* 46.22m



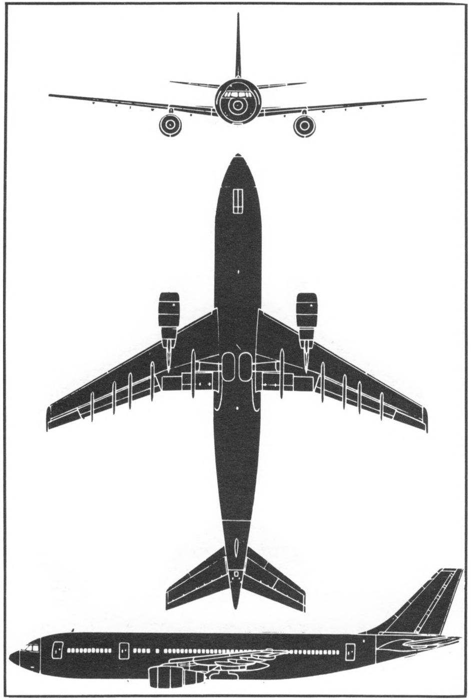


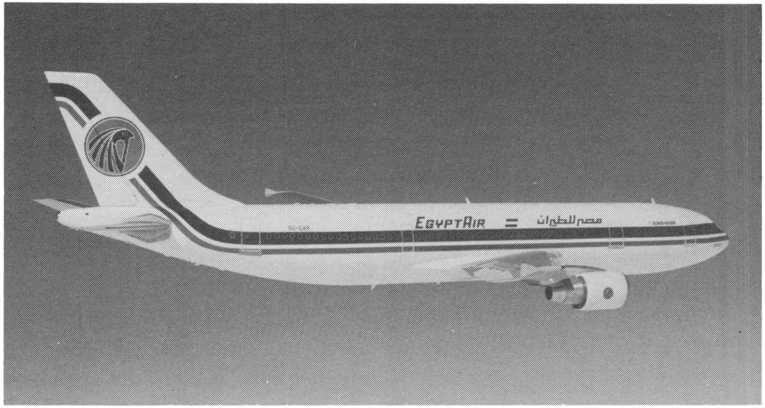
A medium-range airliner seating 190-214 passengers, the Tu-204 first flew in January 1989 and is intended to replace the Tu-154 with Aeroflot. Up to 500 Tu-204s could ultimately be required by the CIS. The aircraft cruises at up to 850km/h and has a range of 3,850km. Apart from the basic Tu-204, there are two further versions, the -100 and -200 with same dimensions but higher operating weights. The Tu-204 is also offered with Rolls-Royce RB211-535 engines and this variant flew in Summer 1992. *Country of origin:* Russia.

Airbus A300

Confusion: DC-10, TriStar, A310, 757, 767

Power: 2 × CF6 or 2 × JT9D turbofans *Span:* 44.84m *Length:* 53.62m

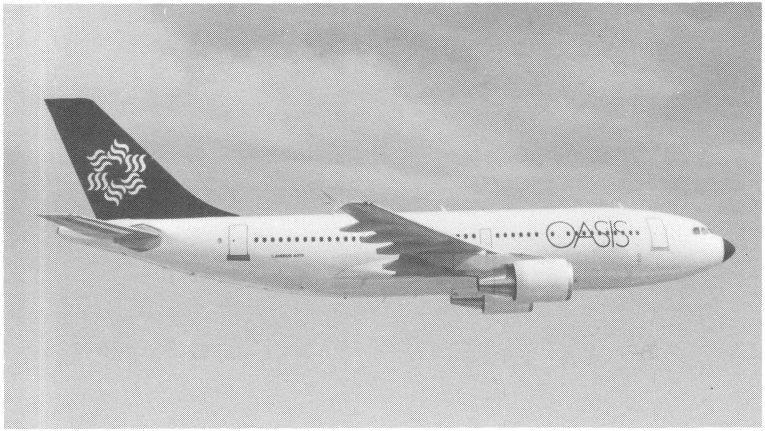


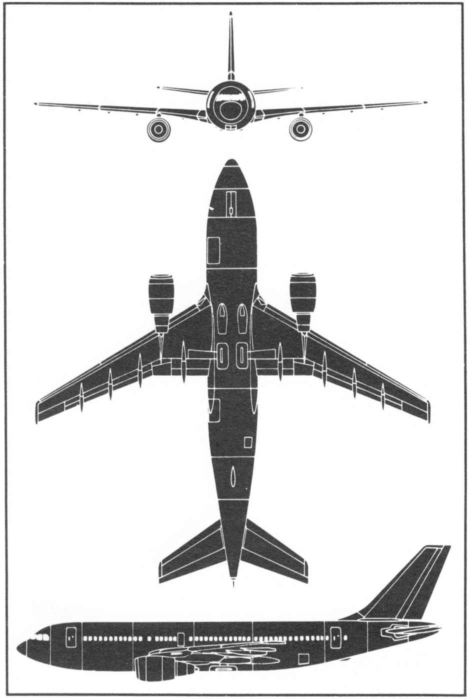


First flown in 1972, the 330-seat wide-body A300 is built by a European consortium of companies: Aerospatiale, MBB (Deutsche Airbus), British Aerospace PLC, CASA and Fokker. The B2 and B4 are basic versions, the latter having more fuel and leading-edge flaps. The A300 is intended for medium-range routes and can fly 4,074km with full payload and reserves. Maximum cruising speed is 930km/h. Two further versions are the A300-600 and A300-600R with increased passenger and freight capacity. The -600R has extended range while the -600 convertible has mixed passenger/freight capacity. By December 1991, the order book for A300s stood at 457. *Countries of origin:* France/Germany/Netherlands/Spain/UK, plus other associated countries. *Silhouette:* A300B2. *Picture:* A300-600R.

Airbus A310

Power: 2 × CF6 or JT9D turbofans *Span:* 43.9m *Length:* 46.6m



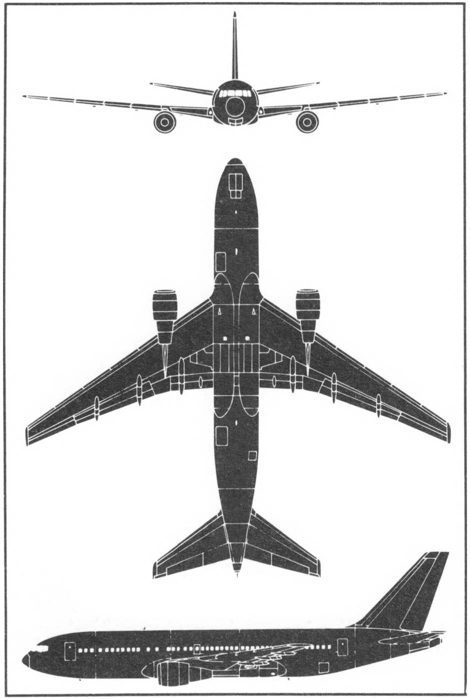


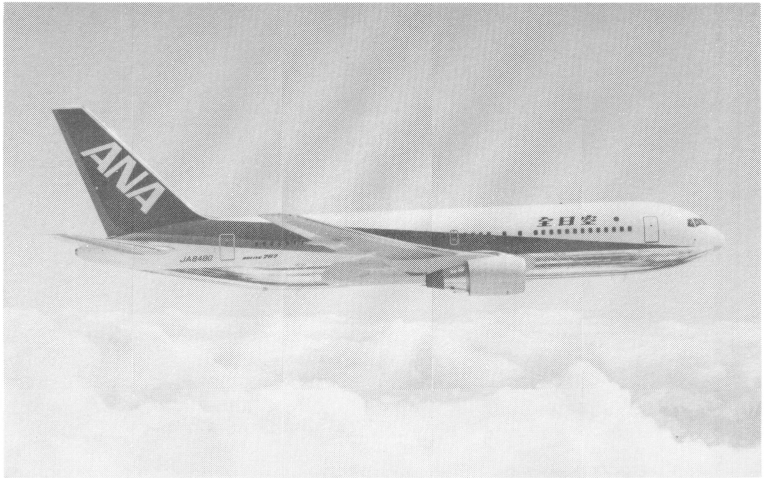
A combination of a shortened-fuselage A300 and a new advanced-technology wing produced the Airbus A310, a direct rival to the Boeing 767. Like the 767, the A310 is offered with two powerplants. By December 1991, 248 A310s had been ordered. First flown in April 1982, the type went into service in April 1983, with Lufthansa and Swissair the first two users. With maximum payload the A310 can fly 4,090km at a speed of 828km/h. A310-200 is the basic version the -200C is a convertible version and -200F a freighter. A first delivery of the A310-300, with longer range, took place in April 1986. Wingtip fences were introduced in 1986. *Countries of origin:* France/Germany/Netherlands/Spain/UK, plus other associated countries. *Silhouette:* A310-200. *Picture:* A310-300.

Boeing 767

Confusion: 757, A300, A310, TriStar, DC-10

Power: 2 × RB211 or 2 × GE CF6-80 or 2 × P&W JTD9-7R4 or 2 × PW 4050 turbofans *Span:* 47.57m *Length:* 48.51m or 54.94m



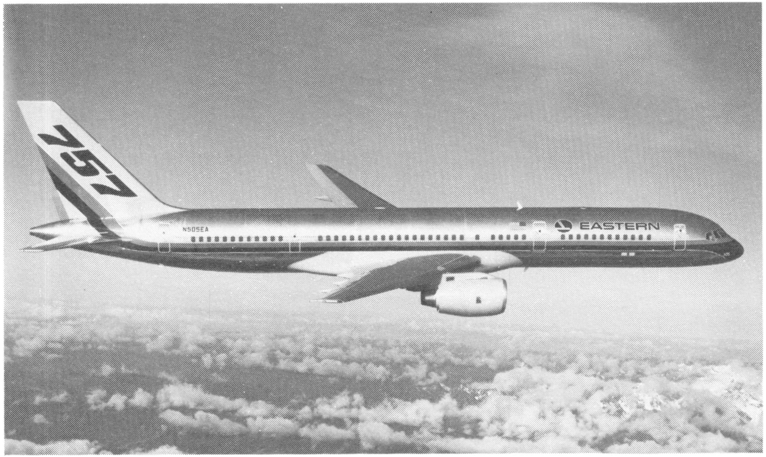


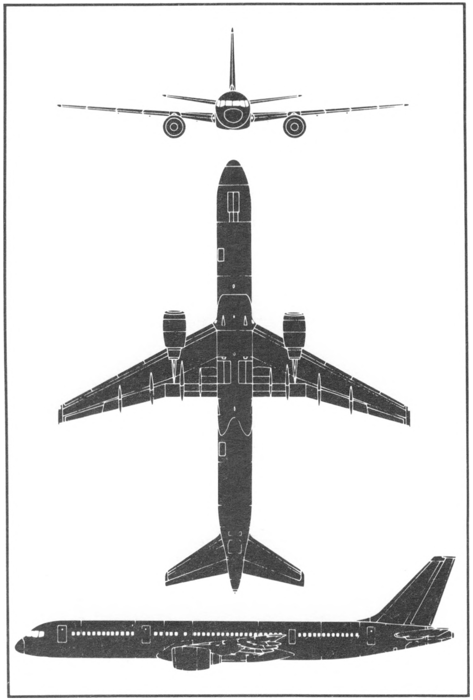
First flown in September 1981, the Boeing 767 is a medium-haul wide-body airliner seating a maximum of 255 passengers. The 767 and the Airbus A310 are direct competitors and they closely resemble each other in external shape. First delivery of the 767 was made in August 1982. Orders total over 550. Like its sister aircraft the 757, the 767 is offered with a choice of powerplants. The 767-200ER has increased range, the 767-300 has a fuselage extended by 6.42m, while the 767-300ER has range increased to over 10,600km. *Country of origin:* USA. *Silhouette:* 767-200. *Picture:* 767-300.

Confusion: A300, A310, 767

Boeing 757

Power: 2 × RB 211 or 2 × PW2037 turbofans *Span:* 37.95m *Length:* 47.32m

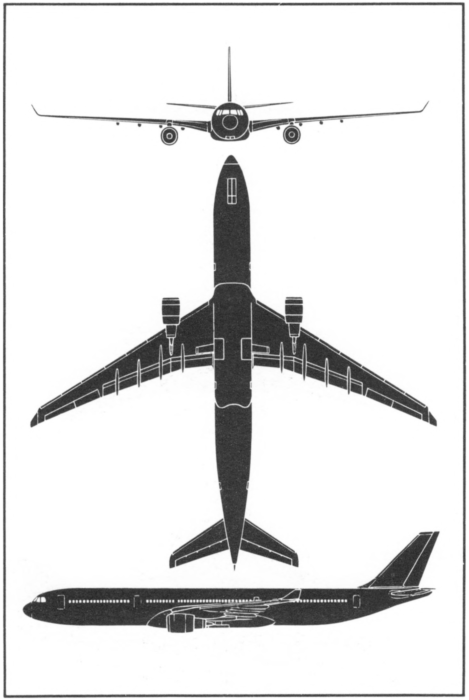


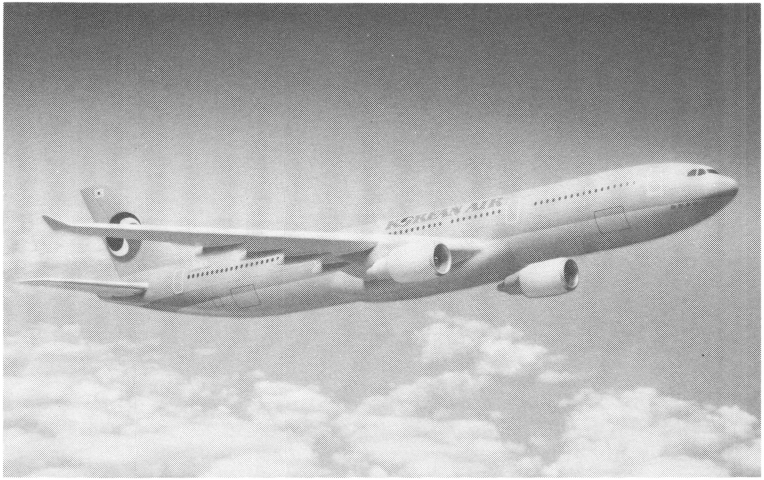


Reversing the trend towards wide-body twin-aisle transports, the slim-body twin-fan single-aisle Boeing 757 airliner first flew in February 1982, with deliveries to airlines beginning 10 months later. Firm orders for the 757 totalled 755 by December 1991, with most airlines selecting Rolls-Royce and others Pratt & Whitney powerplants. In mixed-class international layout the 757 seats 204 passengers, cruises at 850km/h and has a maximum range of over 3,984km. The 757-200PF is a freighter with a large side cargo door, while the 757-200M is a mixed passenger/cargo version. *Country of origin:* USA. *Picture:* 757-200.

Airbus A330 *Confusion:* MD-11, 777, 757

Power: 2 × CF6, Trent or PW4000 turbofans *Span:* 60.3m *Length:* 63.5m



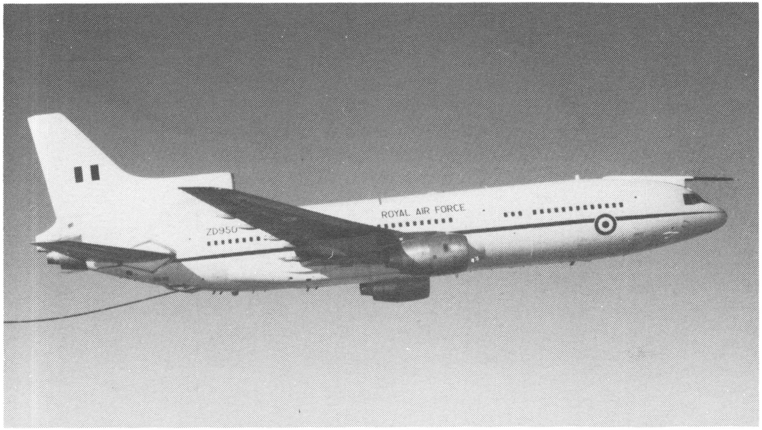


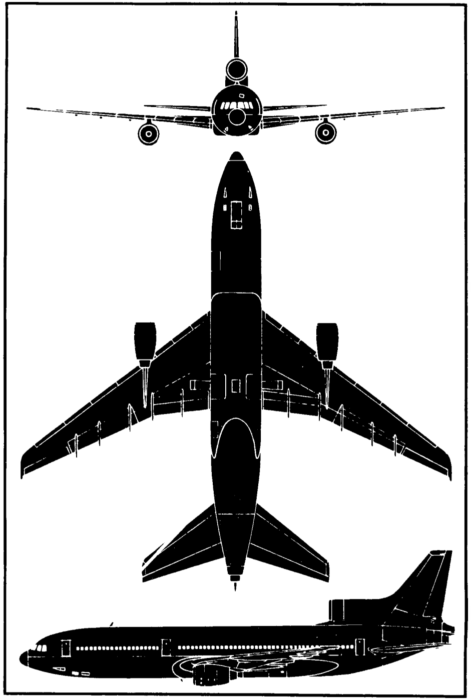
Having the same basic fuselage and wings as the A340, the A330 is a medium/long-range twin-engined airliner seating 335 passengers and powered by the latest big fan engines. The A330 was due to fly in October 1992 with entry into service in 1993. A total of 14 customers have ordered 143 A330s. Later developments are planned, including A330-300X with higher powered engines and increased range and the A330-400X with fuselage stretched by 6.35m. *Countries of origin:* France/Germany/UK/Spain. *Picture:* Artist's Impression.

Confusion: DC-10, A300, A310, 767

Lockheed L-1011 TriStar

Power: 3 × RB211 turbofans *Span:* (except -500): 47.34m *Length:* (except -500): 54.17m



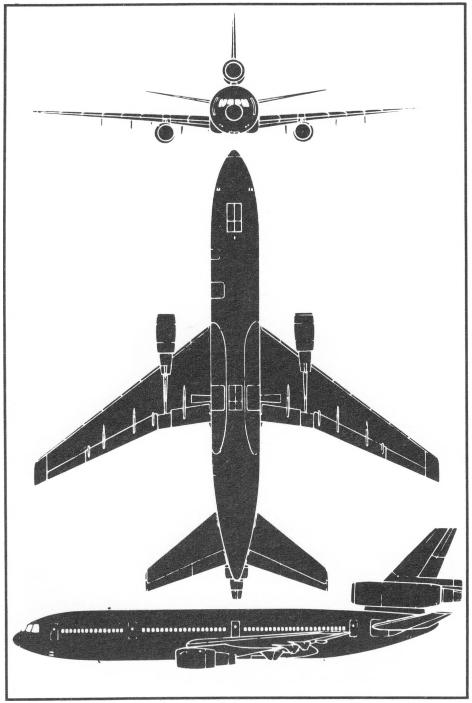


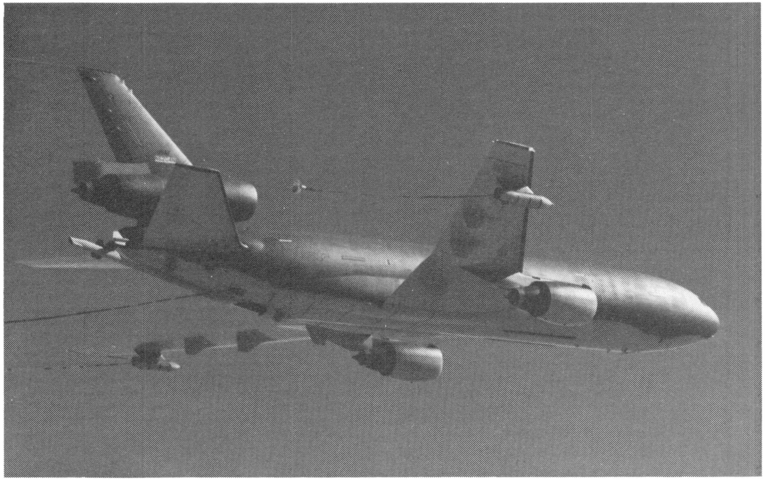
Produced to meet the same wide-body requirement as the McDonnell Douglas DC-10, the Lockheed TriStar was the first aircraft to be equipped with the Rolls-Royce RB211 big-fan engine. The various versions are the 1011-1, 1011-100, 1011-200, 1011-250 and the 1011-500; the last named has a 4.11m reduction in fuselage length. Capacity varies, with up to 400 passengers in all-economy. Lockheed closed the TriStar line in August 1983 with the 250th production aircraft. A total of nine ex-airline 1011-500s were converted for the RAF by Marshall of Cambridge. KC1 is a tanker/freighter and C2K is a conversion with underwing air-to-air refuelling pods. *Country of origin:* USA. *Silhouette:* L-1011-500. *Picture:* TriStar K1.

McDonnell Douglas DC-10

Confusion: TriStar, A300, A310, 767

Power: 3 × CF6 or 3 × JT9D turbofans *Span:* (30/40): 50.41m *Length:* (30/40): 55.5m



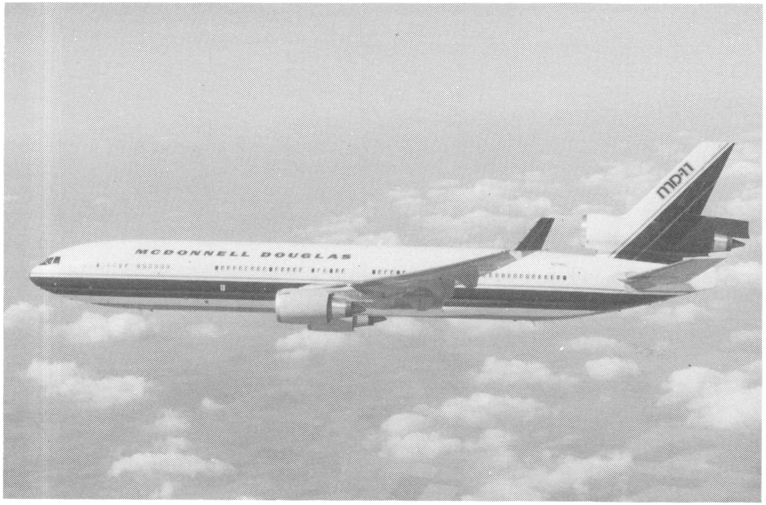


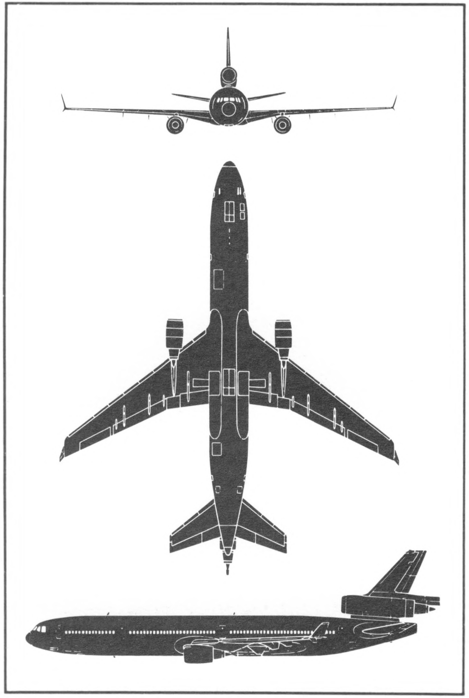
Over 386 DC-10 wide-body airliners have been sold to 53 operators. The Series 10 was the initial version, followed by the Series 30 and 40, both with 3.05m more wingspan. The Series 10 and 30 have CF6 engines and the Series 40 the JT9D. Convertible cargo versions are in service and the USAF has ordered the type for use as an airborne tanker/cargo aircraft designated KC-10. Like the TriStar, which it resembles, the DC-10 first flew in 1970. Maximum seating is for 380 and maximum range is 11,580km. Total built, 386. *Country of origin:* USA. *Silhouette:* DC-10-30. *Picture:* KC-10A.

Confusion: DC10, A300/A310, A330, 767

McDonnell Douglas MD-11

Power: 3 × PW 4360 or Trent or CF6 engines *Span:* 51.66m *Length:* 61.21m



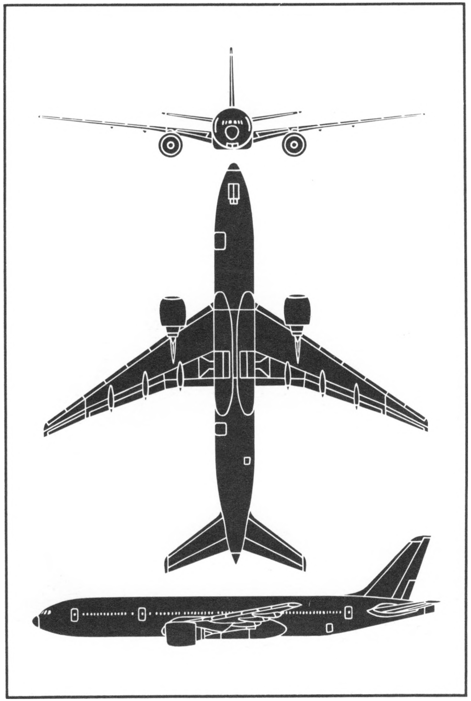


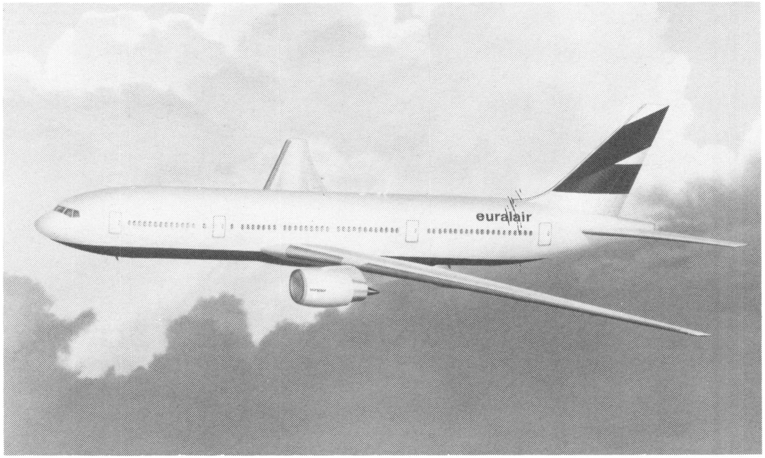
Developed from the DC-10, the MD-11 has a longer fuselage, re-shaped tailplane and winglets above and below the wingtips. The standard MD-11 will seat from 276 to 405 passengers and range is 9,270km. The MD-11F is all-freight. Economical cruising speed is 876km/h. The MD-11 had, by December 1991, amassed a total of 172 orders. McDonnell Douglas is planning to develop a massive new 511 seater four-engined airliner, the MD-12. *Country of origin:* USA.

Boeing 777

Confusion: A330, MD-11

Power: 2 × PW4073, GE90 or Trent turbofans *Span:* 60.25m *Length:* 63.72m



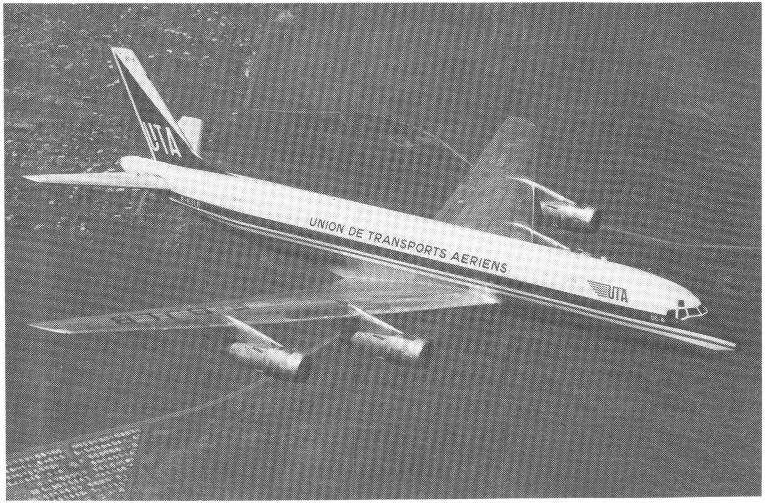


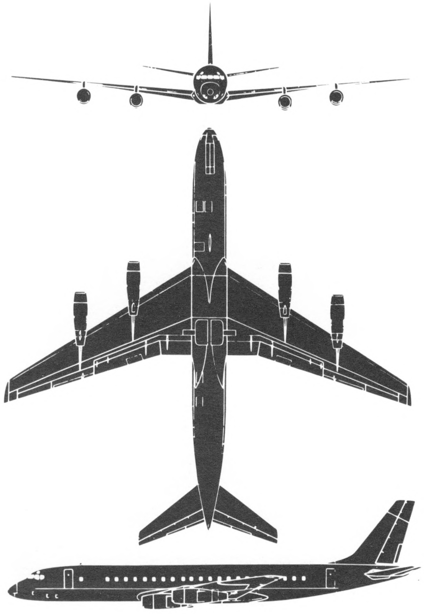
A new generation long-range twin-engined wide-body airliner, the Boeing 777 is in competition with aircraft such as A330 and MD-11. First flight is scheduled for Summer 1994 and deliveries to begin in 1995. Seating up to 400 passengers, the 777 will cruise at Mach 0.83 over 7,505km. Three different types of big fan engine are offered to power the 777. Basic aircraft is the 777-200, the 777 Growth has increased range and various future stretched versions are proposed. To meet airport gate width requirements, the outer wing sections incorporate vertical upward folding. *Country of origin:* USA. *Picture:* Artist's impression.

Confusion: 707, Convair 880/990

McDonnell Douglas DC-8

Power: 4 × JT3D turbofans *Span:* 43.41m *Length:* 45.87m



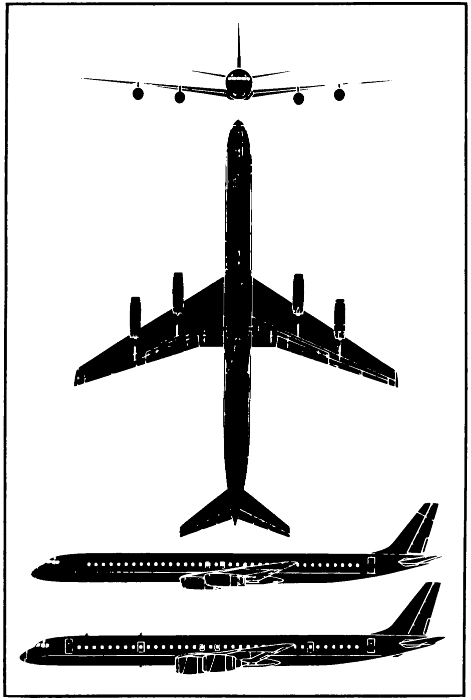


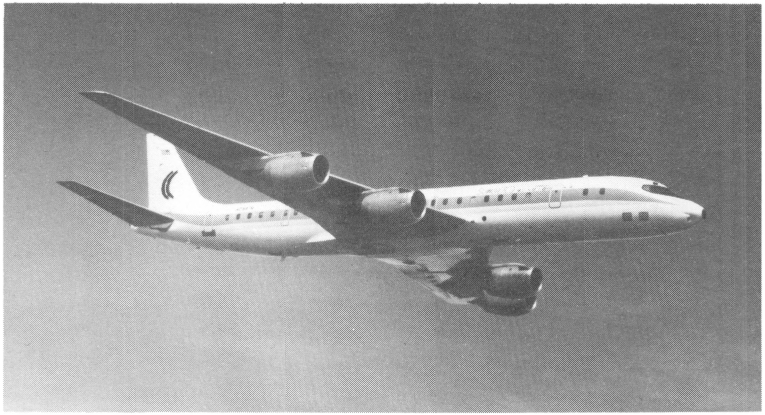
Along with the Boeing 707 and the Comet, the DC-8 pioneered the airline jet age and 294 of the Series 10-50 were built. First flown in 1958, the DC-8 went into service in 1959, some fitted with Rolls-Royce Conway engines. The Series 50 can carry up to 173 passengers for 9,205km. Known as the Jet Trader, a freight and freight/passenger version was introduced into airline service in 1962. Over 320 DC-8s of all variants are still in use. *Country of origin:* USA. *Silhouette:* DC-8-50. *Picture:* DC-8-53.

McDonnell Douglas DC-8 Super 60/Super 70

Confusion: 707 A340

Power: 4 × JT3D turbofans *Span:* (Super 63): 45.23m *Length* (Super 63): 57.12m

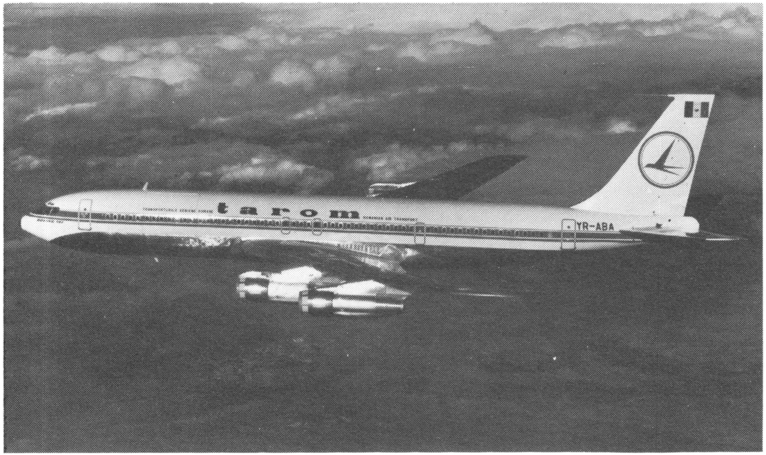


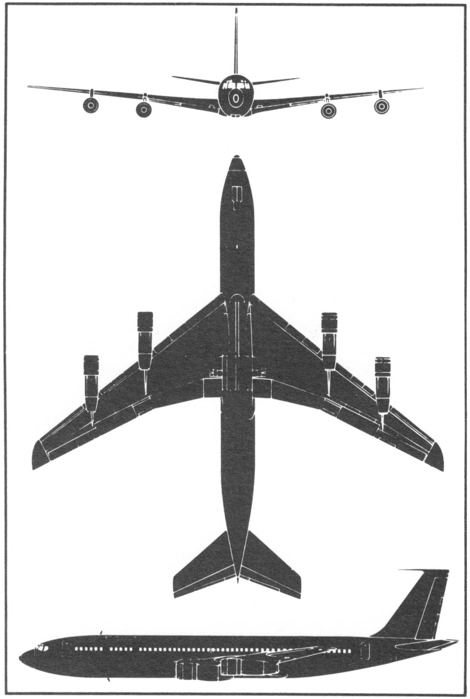


The process of 'stretching' jet transports is nowhere more evident than in the DC-8, the ultimate variant of which, the Series 63, has grown by more than 9.14m compared with earlier versions. The Super 62, with more wingspan than the Series 50, is the shortest version of this range. The Super 61 has the Series 50 wing and a 6.08m fuselage extension, while the Super 63 has the longest fuselage and the bigger wing. The Super 63 can carry up to 259 passengers. In all, 262 Super 60s were built. Re-engined with CFM56 advanced turbofans, the 61, 62 and 63 became the Super 71, 72 and 73 respectively. *Country of origin:* USA. *Main silhouette:* Super 63; *lower side view:* Super 73. *Picture:* Super 70.

Boeing 707

Power: 4 × JT3D turbofans *Span:* 44.2m *Length:* 46.61m



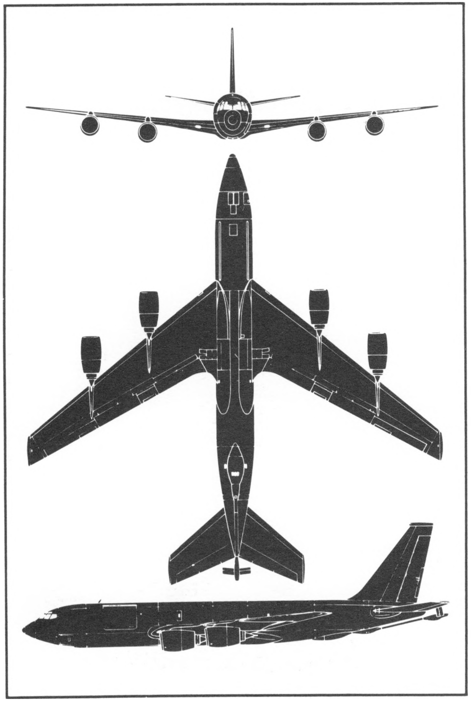


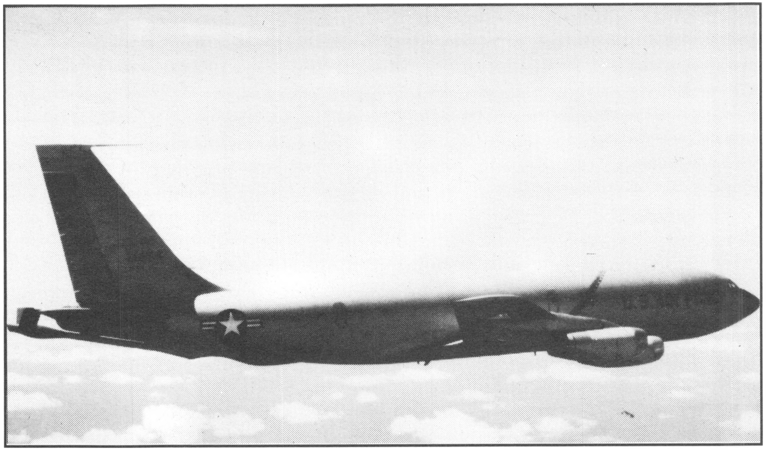
The most successful of the first generation of medium/long-range jet airliners, the 707 first flew in prototype form in 1954. Initial versions seated up to 181 passengers , while the smaller 720 seated 153. Later versions such as the -320 and -420 carry up to 195 passengers and there are variants for cargo and mixed passenger/cargo. The 707 has a maximum cruising speed of 973km/h and can fly 10,040km with maximum fuel. Boeing offers conversions of the 707 as a mixed tanker/transport with hose-drogue or boom refuelling equipment. About 180 707s remain in service. *Country of origin:* USA. *Silhouette:* 707-320. *Picture:* 707-320C.

Boeing KC-135

Confusion: 707, DC-8 and A340

Power: 4 × J-57 turbojets, or JT3D or CFM56 turbofans *Span:* 39.88m *Length:* 41.53m

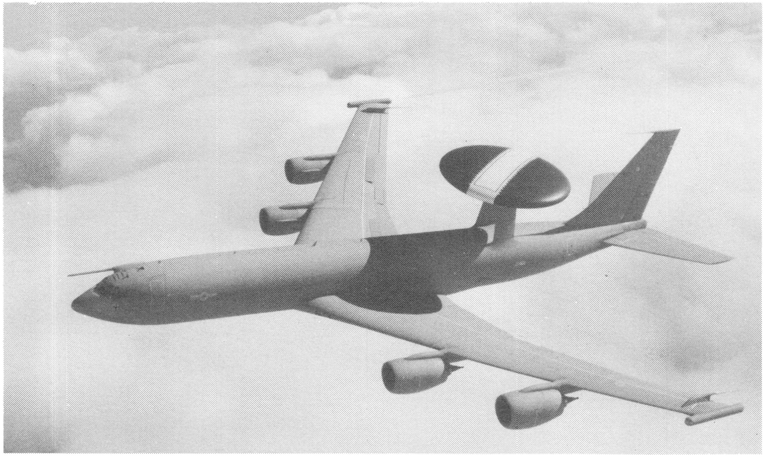


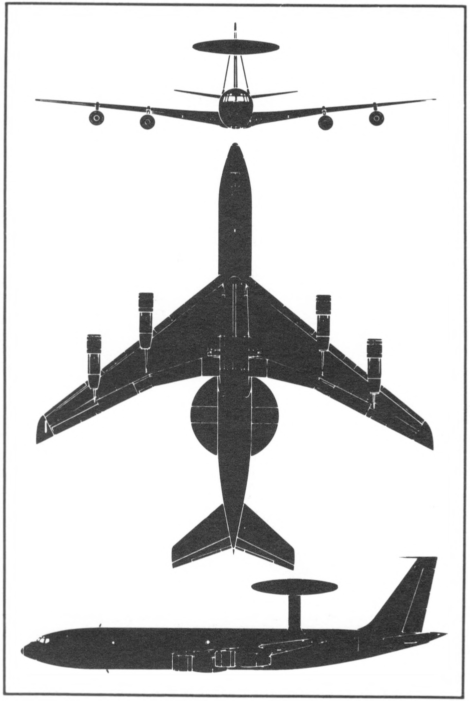


First flown in 1956, the KC-135A is an air-to-air refuelling tanker version of the 707 airliner. Altogether 732 KC-135As with J57 engines were built. To extend the life of the type, JT3D turbofans are being fitted to some aircraft, while 300 others, plus 11 French Air Force machines, are re-equipped with General Electric/SNECMA CFM56 turbofans with much more bulbous nacelles. This version is known as the KC-135R. An export tanker conversion of the 707 for Saudi Arabia is designated KE-3A while various designations have been allocated to other export variants. *Country of origin:* USA. *Silhouette:* KC-135R. *Picture:* KC-135 with JT-3D.

Boeing E-3A Sentry

Power: 4 × TF33 or CFM56 turbofans *Span:* 44.42m *Length:* 46.61m

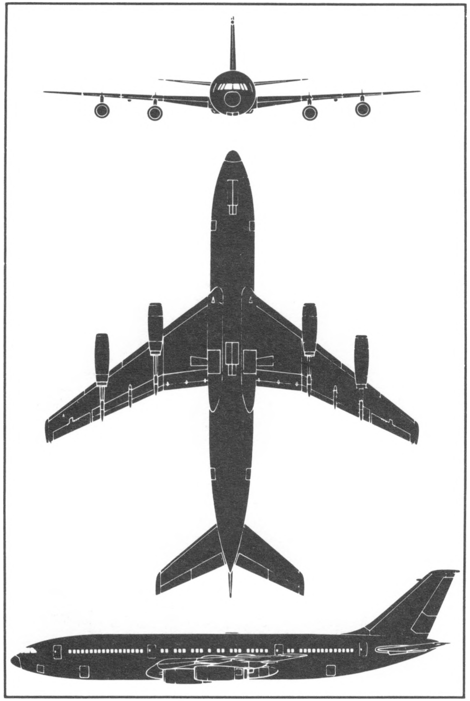


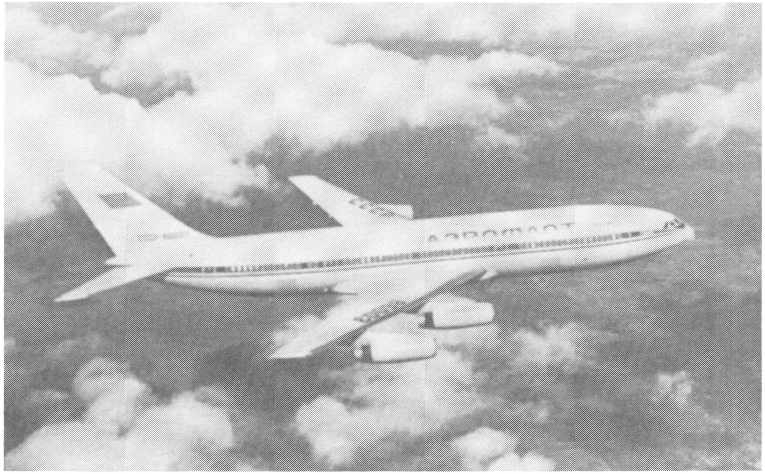


A radar station in the sky, the E-3A Sentry is also known as AWACS (Airborne Warning and Control System). The aircraft is basically a 707 transport fitted with a very large circular radome above the fuselage and a complete air-defence operations centre in the cabin. The 17-man crew track numerous hostile targets and direct fighters onto them. The Sentry has been produced for the US Air Force, NATO, the RAF (AEW 1) and Saudi Arabia. The first development aircraft, flown in 1972, was known as the EC-137. The type is fully operational in the USA and Europe and sub-variants are E-3B and E-3C. *Country of origin:* USA. *Silhouette and picture:* AEW 1.

Ilyushin Il-86 ‘Camber’ *Confusion:* 707, 747, DC-8, A340

Power: 4 × Kuznetsov turbofans *Span:* 48.06m *Length:* 59.54m



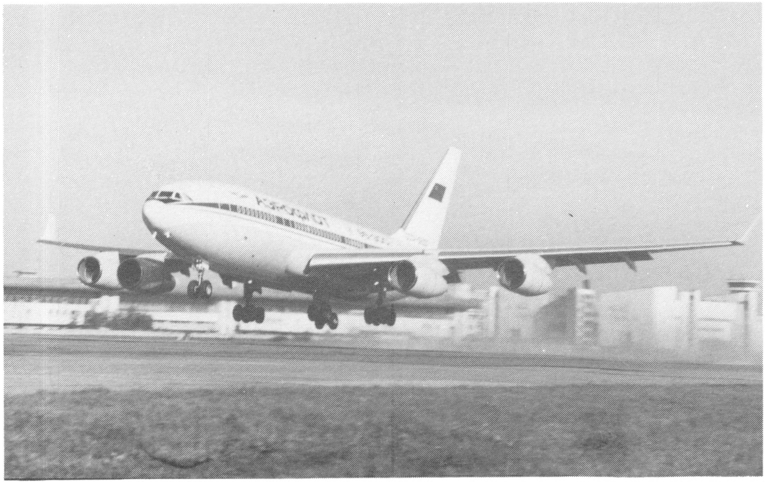


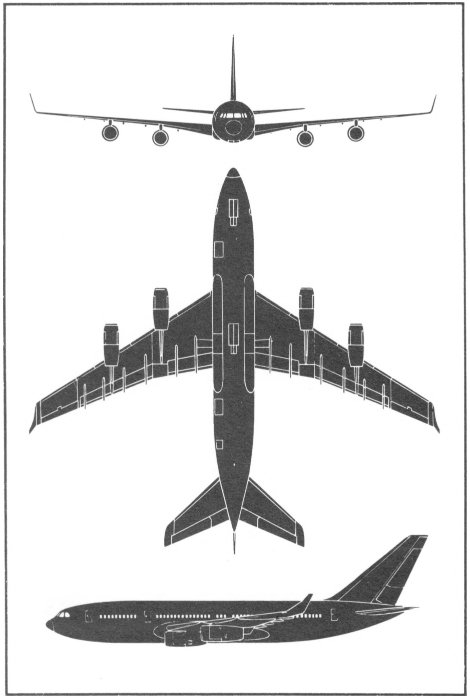
Russia’s first wide-bodied jet, the Il-86, NATO code-named ‘Camber’, first reported in 1972, subsequently underwent extensive redesign and finally flew in December 1976. Seating up to 350 passengers, the Il-86 is intended for use over sectors of 2,350km at a speed of around 900–950km/h. The Il-86 entered service with Aeroflot in 1980. To improve performance, the Il-86 is to be re-engined with Soloviev or Western turbofans. *Country of origin:* Russia.

Confusion: Il-86, 747-400

Ilyushin Il-96-300

Power: 4 × PS-90A turbofans *Span:* 57.66m *Length:* 55.35m



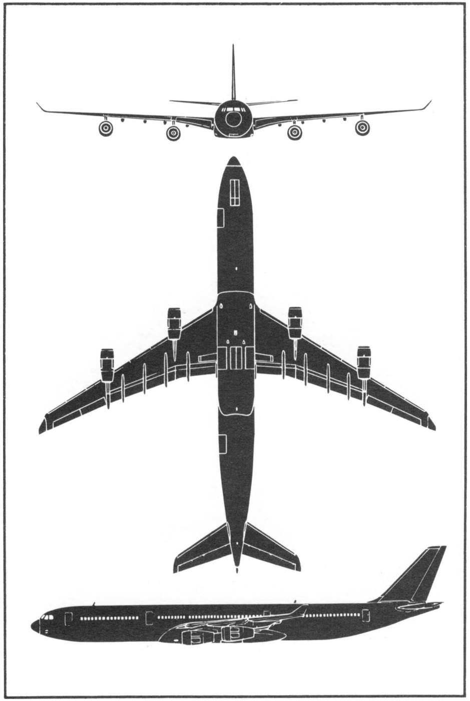


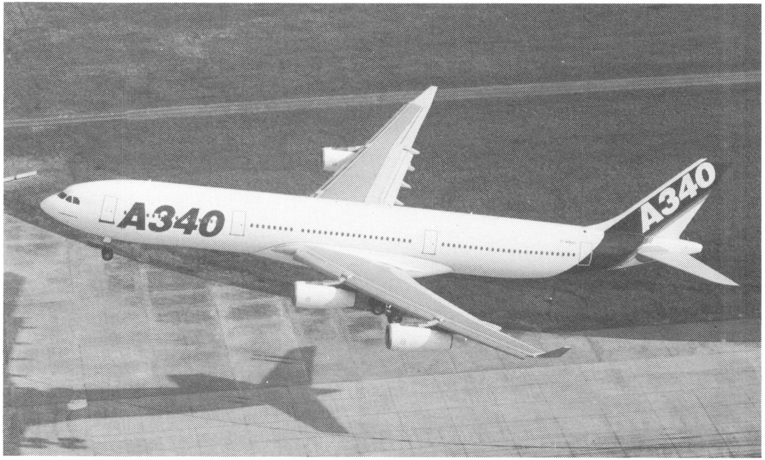
Resembling the Il-86, the Il-96-300 is, in fact, a new design with an increased span wing of less sweep back and fitted with tip winglets. The 96-300 has Soloviev instead of Kuznetsov turbofans and passenger loading is through the upper and not lower deck as on the Il-86. Accommodation is for 250–300 passengers, maximum range is 11,000km and cruising speed 850-900km/h. The first prototype flew in November 1989. A later development, Il-96M, will have Western turbofan engines. *Country of origin:* Russia.

Airbus A340

Confusion: Il-96, 747-400

Power: 4 × CFM56 turbofans *Span:* 60.3m *Length:* 63.65m



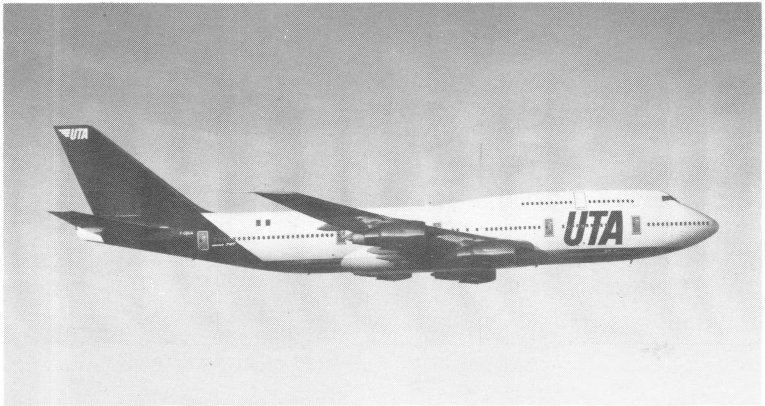


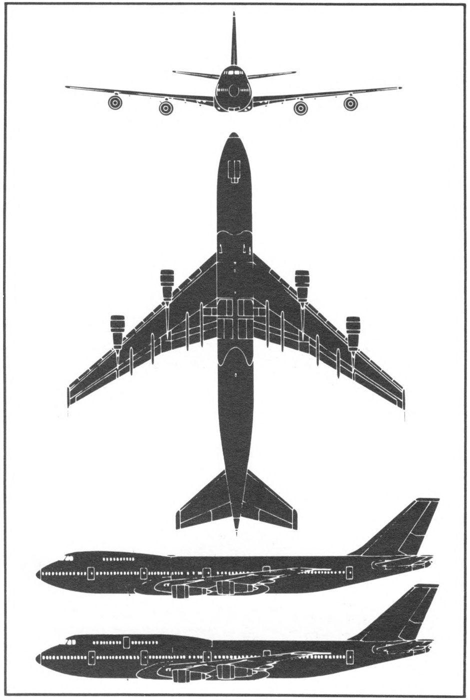
A combined programme with the twin-engined A330, the A340 is the largest commercial airliner so far built in Western Europe. A 335 seater, the A340-300 cruises at Mach 0.82 and has a range of over 8,700km. First flight was in October 1991 and the A340 will enter service early in 1993. The A340-200 is a longer range, shorter fuselage (59.89m) version seating 303. A passenger/cargo combi version of the A340 is on offer as is a longer range A340-300 known as the -300X. The A340-300 first flew in October 1991 and the A340 order book totals 115 aircraft for 19 customers. *Countries of origin:* France/Germany/UK/Spain.

Confusion: 707, DC-8

Boeing 747

Power: 4 × JT9D, CF6 or RB 211 turbofans *Span:* 59.64m *Length:* 70.51m



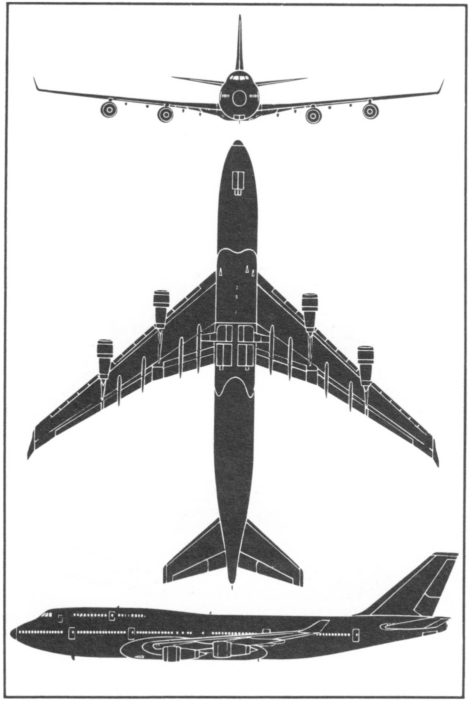


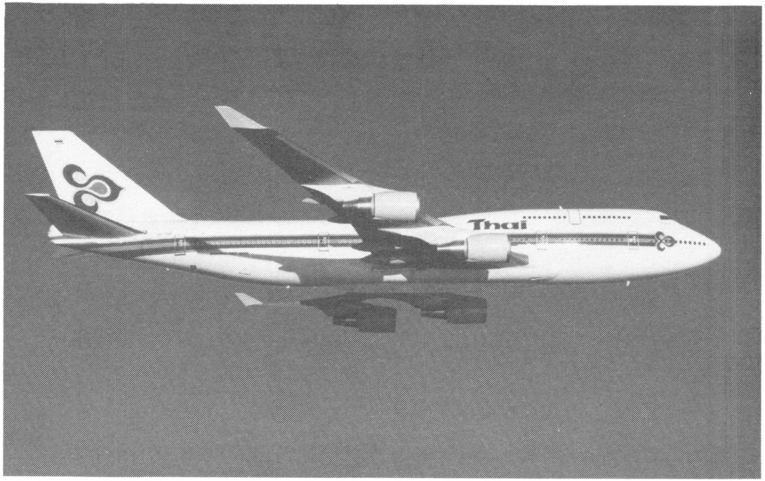
The Boeing 747 was the first of the wide-bodied 'jumbo jets'. It can seat up to 490 passengers in economy class and cruise at 948km/h over sectors of up to 11,395km. Initial version was the -100, followed by the -200 with more fuel. Passenger/cargo and all-cargo 747s are known as the -200C and -200F respectively. A short-range variant is designated 747SR. The short-fuselage 747SP (Special Performance) carries 360 passengers for up to 15,400km. The 747-300 (formerly 747EUD), has the upper front fuselage extended aft to accommodate 37 more passengers. A total of 19 PanAmerican 747s were modified to passenger/convertible standard as C-19As as part of the Civil Reserve Air Fleet programme of the USAF. *Country of origin:* USA. *Main silhouette:* 747-200B; *lower side view:* 747-300. *Picture:* 747-300.

Boeing 747-400

Confusion: A340, MD-11

Power: 4 × CF6, PW4256 or RB 211 engines *Span:* 64.92m *Length:* 70.66m



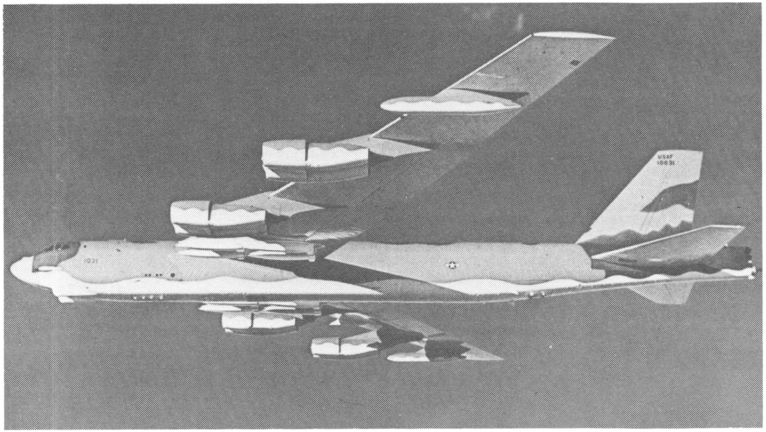


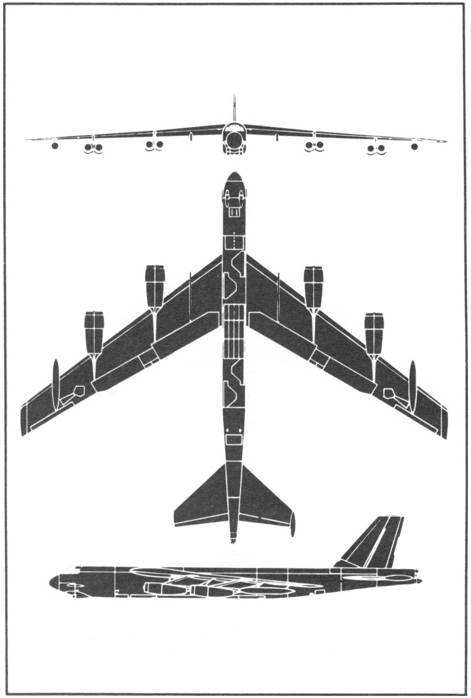
A very long range advanced development of the 747-300, the 747-400 has wingspan extended by 3.66m and sweptback winglets fitted at the tips. The -300 fuselage extended upper deck is retained. Engine nacelles and pylons have been standardised with those of the 767. Depending on layout, the 747-400 will carry between 450 and 630 passengers. With 412 passengers the -400 has a range of 13,528km. By December 1991 the -400 order book totalled 423. A combined passenger/freight version is designated 747-400M and an all-cargo variant -400F. *Country of origin:* USA.

Confusion: 747, A340

Boeing B-52 Stratofortress

Power: 8 × J57 turbojets or 8 × TF33 turbofans *Span:* 56.42m *Length:* 48.03m



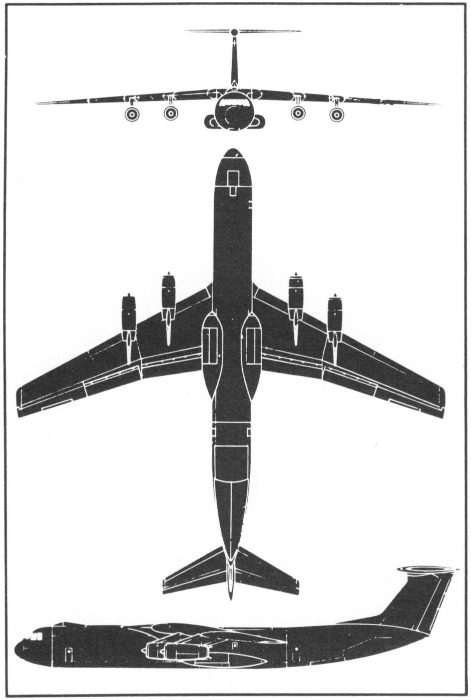


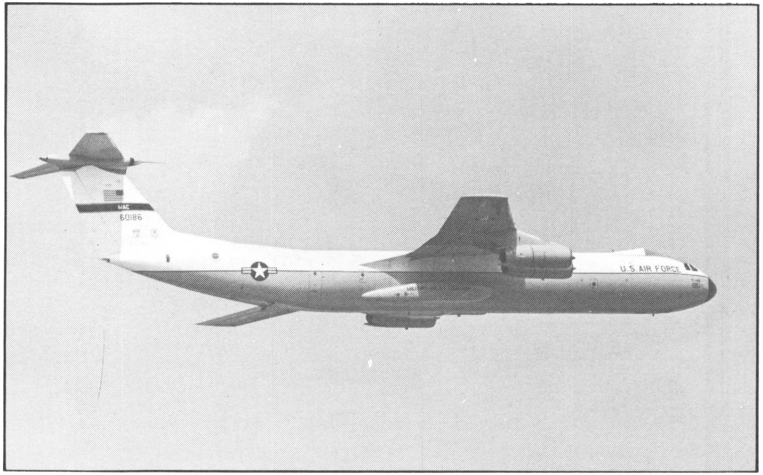
In service since 1957, the B-52 still forms the backbone of the USAF's Strategic Air Command with some 260 available. The force has been progressively modified to carry the Boeing AGM-86B air-launched cruise missiles or SRAM missiles. Main versions in service are the B-52G and B-52H, the former with J57 and the latter with TF33 engines. With a crew of six and full weapon load, the B-52 can carry 27,215kg of internal weapons, plus missiles or other equipment on wing pylons. Outboard external fuel tanks can be fitted. The aircraft carries a wide variety of ECM systems. A multi-barrel radar-controlled 20mm Gatling gun is carried in the tail. *Country of origin:* USA. *Silhouette and picture:* B-52H.

Lockheed C-141B Starlifter

Confusion: Galaxy, 'Candid', BAe 146

Power: 4 × TF33 turbofans *Span:* 48.74m *Length:* 51.29m



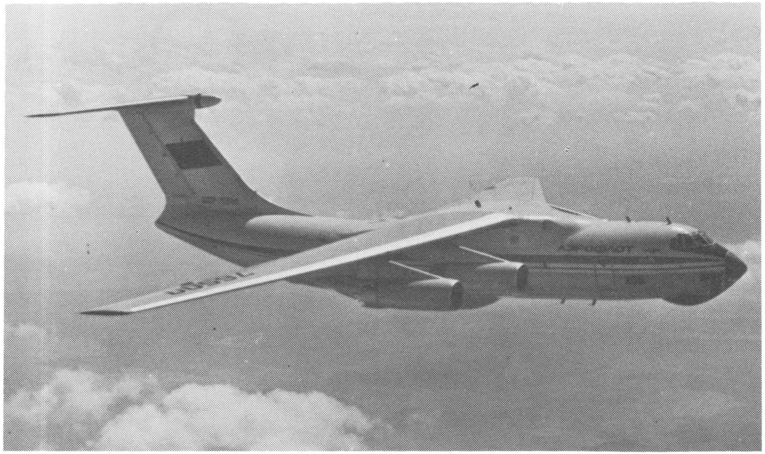


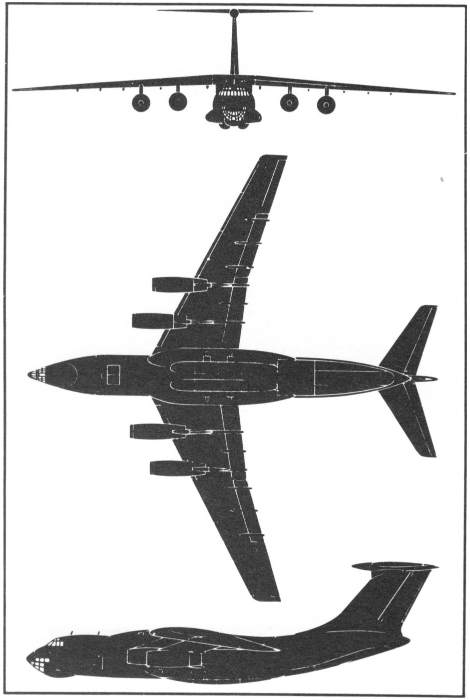
The USAF's first pure-jet strategic freighter, the Starlifter entered service in 1964. Altogether 285 Starlifters were built and they are in use in many parts of the world with Military Airlift Command. Cargo, vehicles, equipment, guns and missiles can be carried. Range with maximum payload of 44,450kg is 4,264km. The Starlifter is loaded through rear underfuselage doors. All Starlifters in the USAF have now been rebuilt to C-141B standard, with longer fuselage. *Country of origin:* USA. *Silhouette and picture:* C-141B.

Confusion: Starlifter, Galaxy, 747, C-17A

Ilyushin Il-76 'Candid'

Power: 4 × D-30 turbofans *Span:* 50.5m *Length:* 46.59m



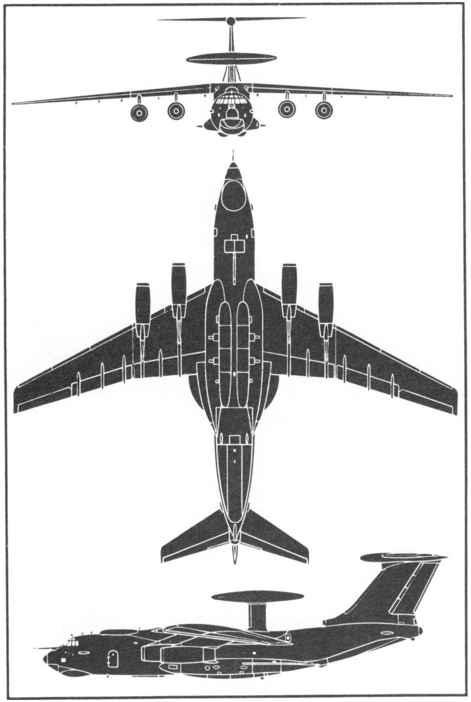


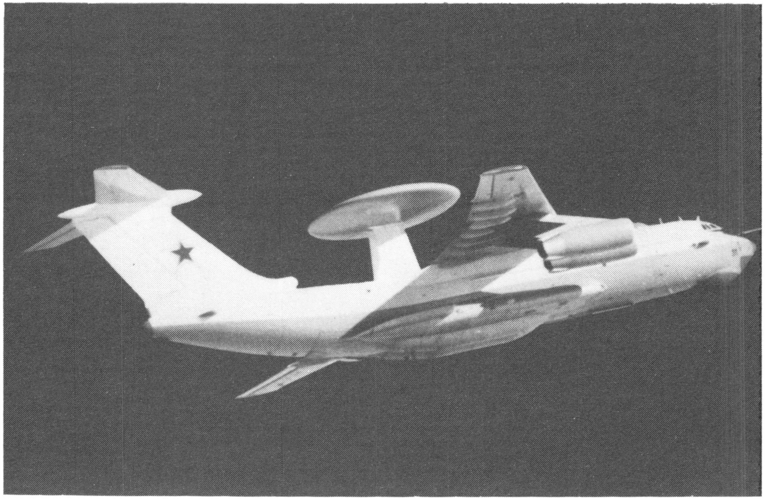
The Russian answer to the Lockheed Starlifter, the Il-76 first flew in 1971. A massive strategic transport, the 'Candid' is designed to operate from short, rough airfields. Maximum payload is 40,000kg and cruising speed 850km/h. Tanks, guns and a variety of other vehicles and equipment can be loaded through rear doors. There are two main versions, 'Candid A' and 'B', the 'B' being a military version with a tail turret. Several hundred Il-76s are in Russian Service and the type has been widely exported in both military and civil forms. An airborne tanker version has the NATO code-name 'Midas'. *Country of origin:* Russia.

Il-76 'Mainstay'

Confusion: E-3A, 'Candid'

Power: 4 × Soloviev turbofans *Span:* 50.5m *Length:* 46.59m



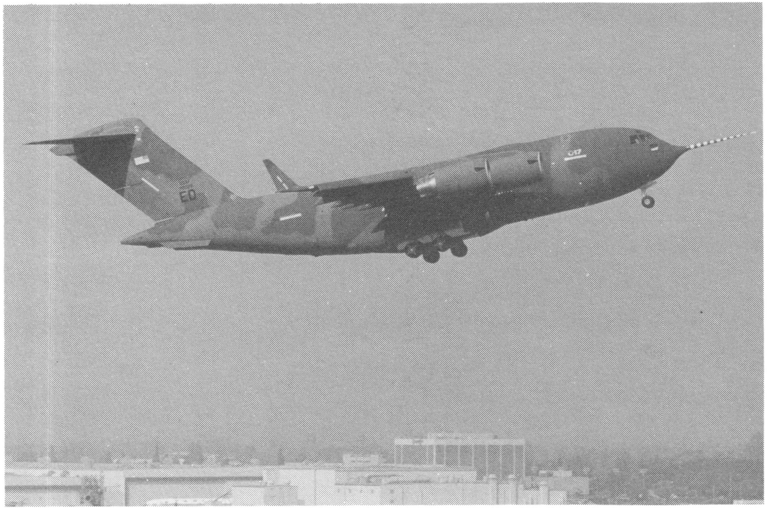


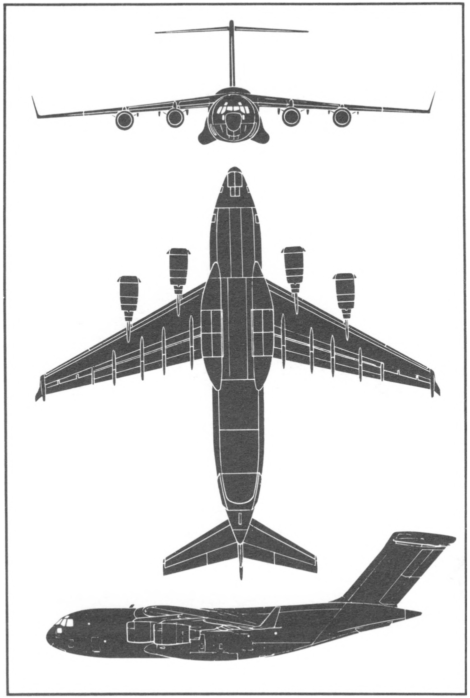
A direct development of the Il-76 'Candid' transport, the 'Mainstay' is the Russian opposite number to the Boeing E-3 Sentry as an airborne early warning and control aircraft. Like the E-3 it has a large rotodome mounted on struts on the upper rear fuselage. The dorsal fin has a prominent air intake at the forward end. Some 15 'Mainstays' are believed to be in service. *Country of origin:* Russia.

Confusion: Galaxy, 'Candid'

McDonnell Douglas C-17A

Power: 4 × F117 turbofans *Span:* 50.29m *Length:* 53.04m



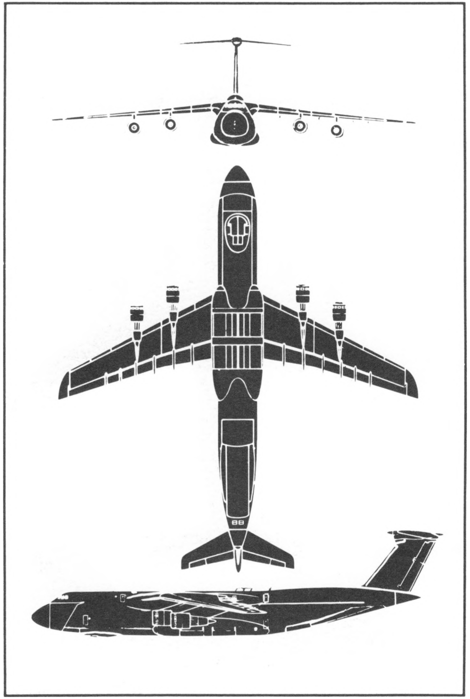


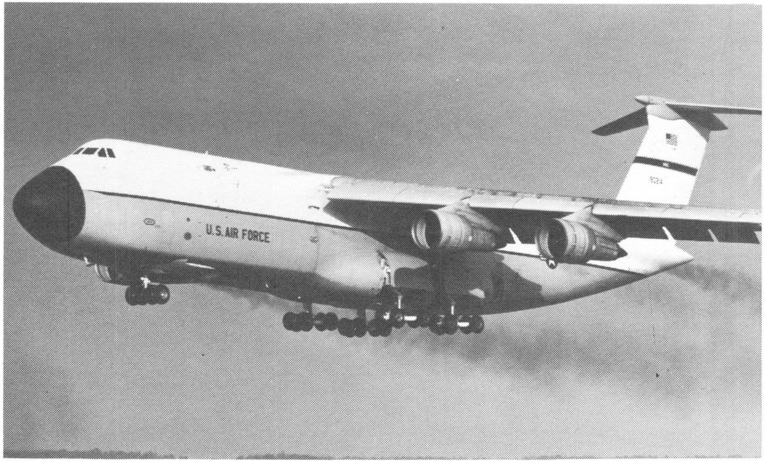
A long range heavy lift transport, the C-17A is intended to provide the capacity of the C-5 with the airfield performance of the Hercules. It can carry the M.1 battle tank, a variety of wheeled vehicles or up to three attack helicopters. A range of equipment can be air-dropped or up to 102 troops. Access is via the rear loading ramp. Cruising speed is Mach 0.77 and range is up to 5,190km with 56,245kg payload. The USAF has a requirement for 120 C-17As. First flight was in September 1991. *Country of origin:* USA.

Lockheed C-5 Galaxy

Confusion: Starlifter, 'Candid', C-17A

Power: 4 × TF39 turbofans *Span:* 67.88m *Length:* 75.54m



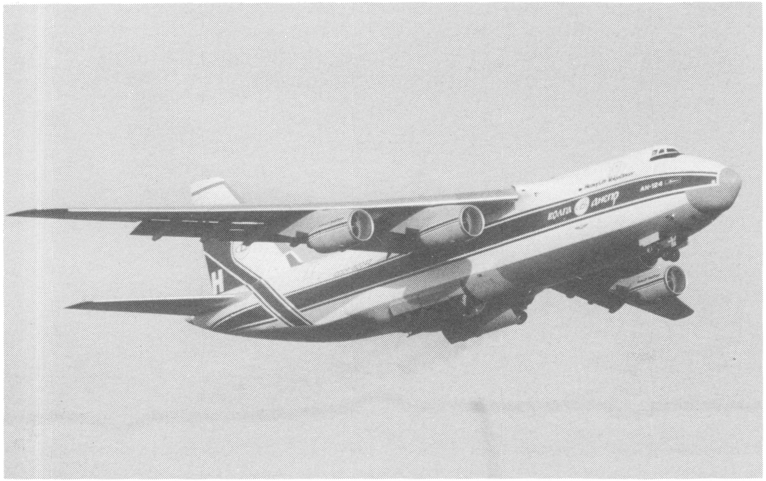


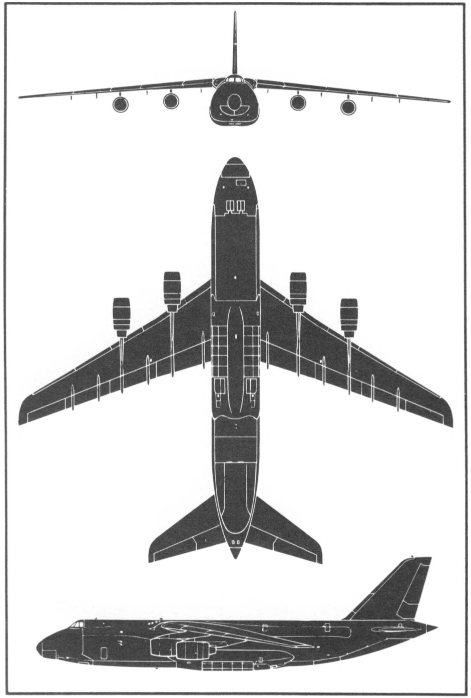
The world's third largest transport, the Galaxy can carry up to 345 troops on two decks, or 120,200kg of freight for 4,745km. First flown in 1968, the Galaxy went into service as the C-5A in 1970. The 76 aircraft in service form four squadrons in Military Airlift Command. Cruising at 864km/h, the Galaxy has a maximum-fuel range of 10,460km. All Galaxies have been retrofitted with a new, stronger wing. The USAF has received an additional 50 aircraft, designated C-5B, an updated version which is externally similar. *Country of origin:* USA.

Confusion: An-225, Galaxy

Antonov An-124 'Condor'

Power: 4 × D-18T turbofans *Span:* 73.30m *Length:* 69.10m



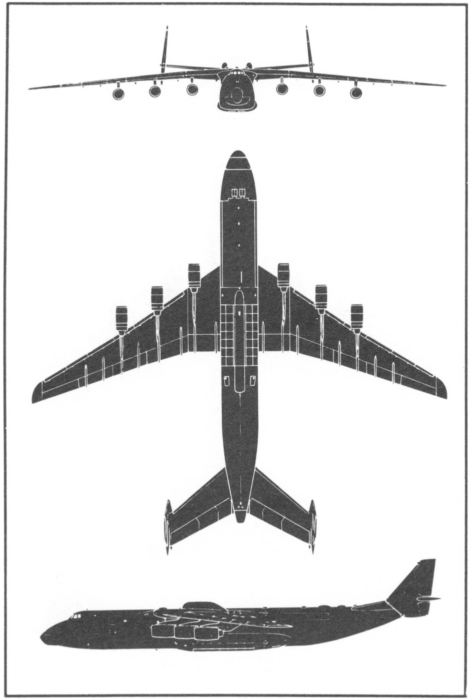


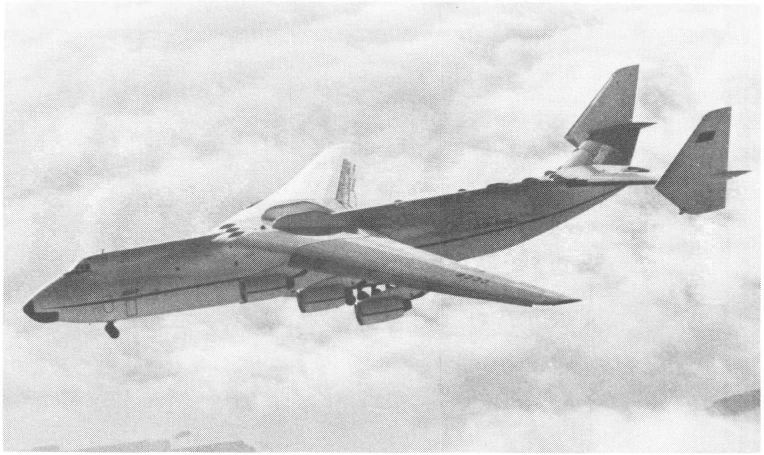
Until the advent of the An-225, the An-124, NATO code-name 'Condor', was the world's largest aircraft. The prototype 'Condor' transport first flew on 26 December 1982. With an upward opening hinged nose and rear ramp/door, the 'Condor' can be loaded from both ends. The aircraft has a maximum payload of 150,000kg, maximum cruising speed of 865km/h and range with maximum fuel of 16,500km. The 'Condor' carries a flight crew of six, a relief crew of six and can seat 88 passengers in a cabin above the flight deck. By 1991 26 An-124s had been delivered. *Country of origin:* Ukraine.

Antonov An-225 'Cossack'

Confusion: 'Condor', Galaxy

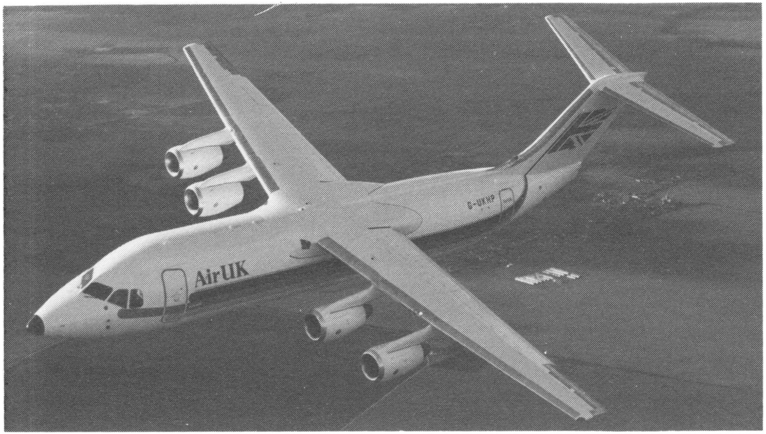
Power: 6 × D-18T turbofans *Span:* 87m *Length:* 84m

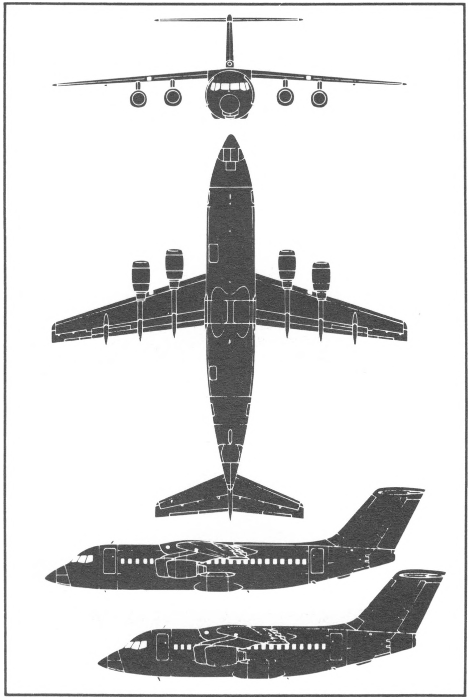




The world's largest aircraft, the six-engined An-225 Mriya (Dream), code-named 'Cossack', made its maiden flight in December 1988 from Kiev. Developed from the An-124 'Condor', the An-225 is designed to carry big piggyback loads such as the CIS space shuttle. Large loads can also be carried in the 43m long cargo hold. Maximum take-off weight is 600,000kg and payload 200,000kg. The aircraft has four nosewheels and 14 mainwheels on each side of the fuselage. Apart from sheer size and number of engines, the An-225 differs from the An-124 in having twin fins to facilitate loading on top of the fuselage. *Country of origin:* Ukraine.

Power: 4 × ALF502 turbofans *Span:* 26.34m *Length:* (Series 100): 26.16m



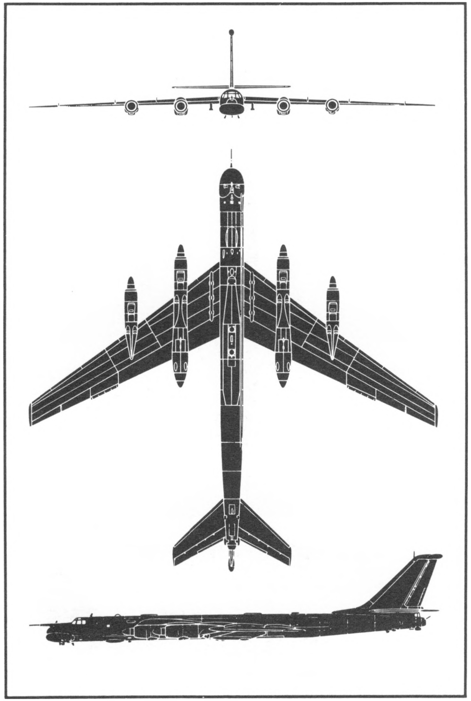


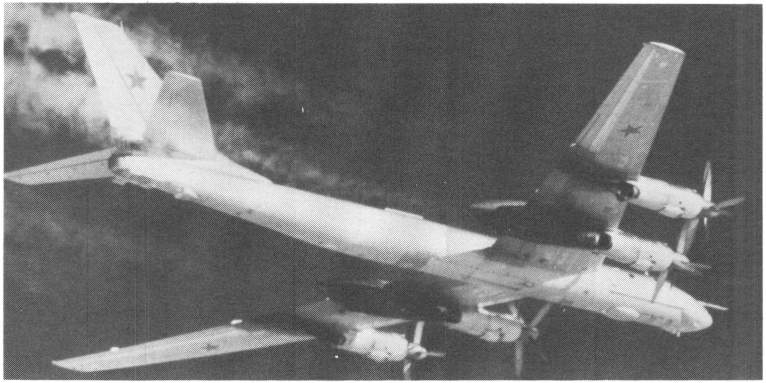
Unusual as a civil transport, combining four jets, high wing and T-tail, the BAe 146 is a short-field, short-haul feederliner first flown in September 1981. Three basic versions are produced: the Series 100 with 71-93 seats and the Series 200 with length increased to 28.55m and seating 82-109 and the series 300 with length extended by 4.8m and seating 120. Mixed passenger/freight versions are on offer. The Series 200 cruises at 702km/h over ranges of up to 2,743km. The BAe 146 order book totalled 206 by late 1991. RJ70 and RJ80 are derated engine versions of the series 100. Military variants are offered. *Country of origin:* UK. *Main silhouette:* 146 Series 200; *lower side view:* 146 Series 100. *Picture:* Series 300.

Tupolev Tu-95/Tu-142 'Bear'

Confusion: Stratofortress

Power: 4 × Kuznetsov turboprops *Span:* 48.5m *Length:* 47.5m



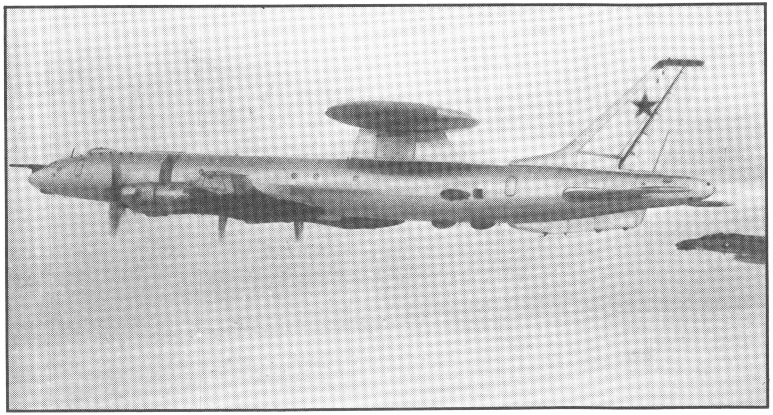


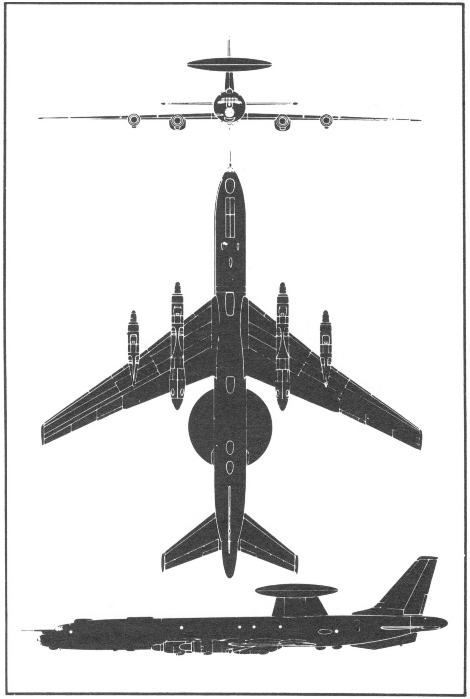
Employed by the Russian Air Force as a long-range strategic bomber, the 'Bear' is also used for maritime and electronic warfare work by the Russian Navy. The 805km/h 'Bear' is very unusual in having swept wings combined with turboprop engines. 'Bear C' has a nose radome and rear-fuselage radomes, 'Bear E' has a smaller nose radome and under-fuselage cameras, and 'Bear F' has larger wing trailing-edge fairings. Standard armament is two 23mm cannon in the tail. Performance figures for 'Bear A' include a maximum level speed at 12,500m of about 805km/h and maximum range of 12,555km. A new version of the aircraft, 'Bear H', is in service and carries AS-15 cruise missiles. 'Bear J' is a communications relay aircraft. *Country of origin:* Russia. *Silhouette and picture:* 'Bear H'.

Confusion: 'Bear', 'Sentry'

Tupolev Tu-126 'Moss'

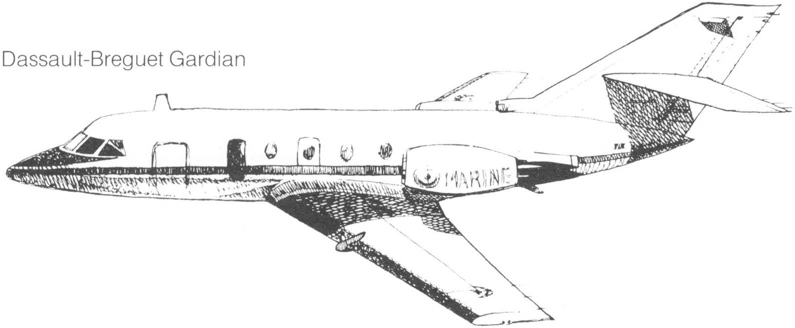
Power: 4 × Kuznetsov turboprops *Span:* 51.2m *Length:* 57.3m



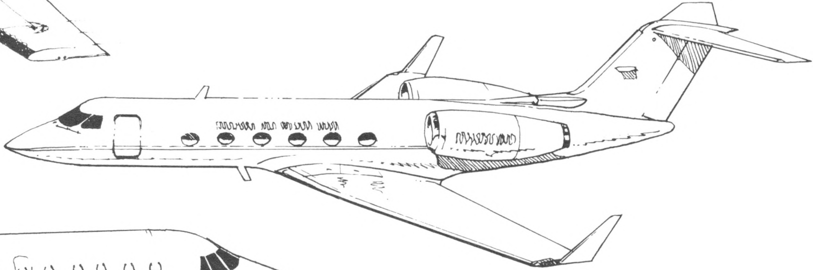


Adapted from the Tu-114 'Cleat' airliner (which has the wings and tail of 'Bear'), the 'Moss' is an airborne early warning and control aircraft in the same operational class as the Sentry. The 'Moss' carries a massive radar scanner of 11.4m diameter above the rear fuselage. The cabin operations room houses radar operators and control staff. The aircraft is equipped for in-flight refuelling. 'Moss' is designed to work with advanced interceptors. Having located incoming low-level strike aircraft, 'Moss' would pass their height and speed to fighters armed with 'snap-down' missiles capable of being fired from a height of 6,100m or more. About 9 Tu-126s are in service with the Russian Air Force. *Country of origin:* Russia.

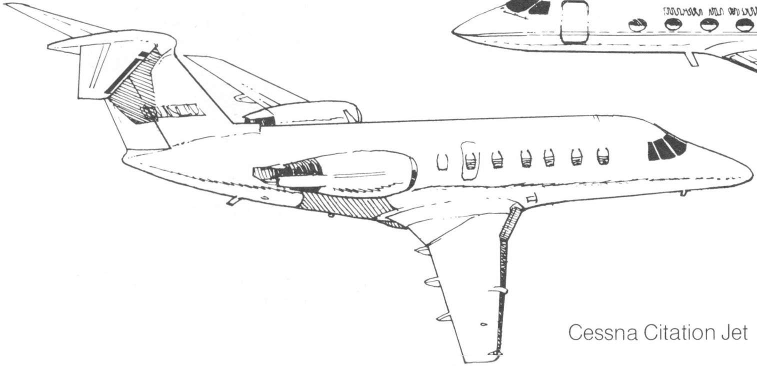
Jet. swept wing, rear engines



Dassault-Breguet Gardian



Gulfstream Aerospace
Gulfstream 4

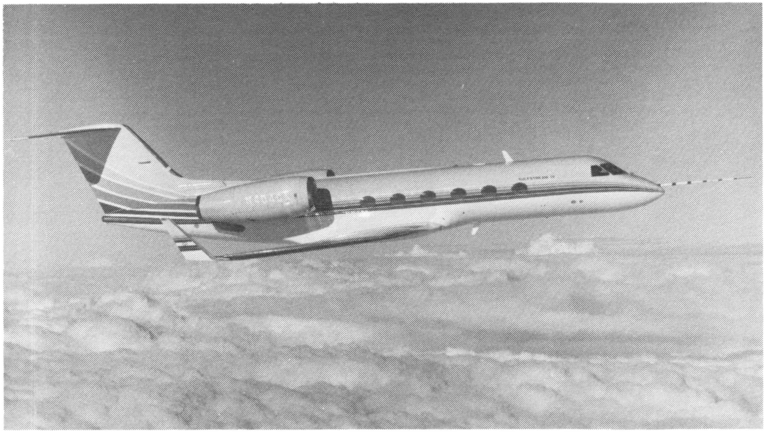


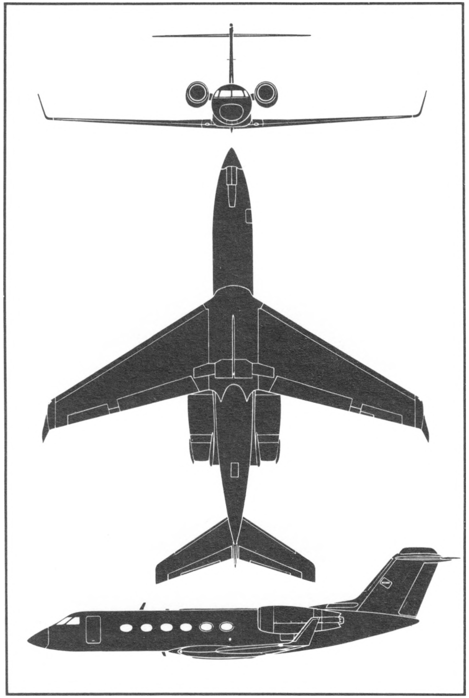
Cessna Citation Jet

Confusion: One-Eleven, Fellowship, Falcon

Gulfstream Aerospace Gulfstream II/III/IV

Power: 2 × Spey or (Gulfstream IV) Tay turbofans *Span:* (II and III): 20.98m; (IV): 23.72m; *Length:* (II and III): 24.36m; (IV): 26.92m

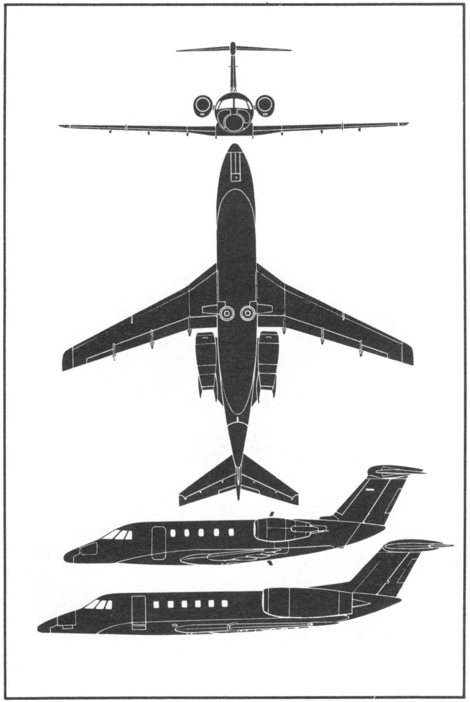


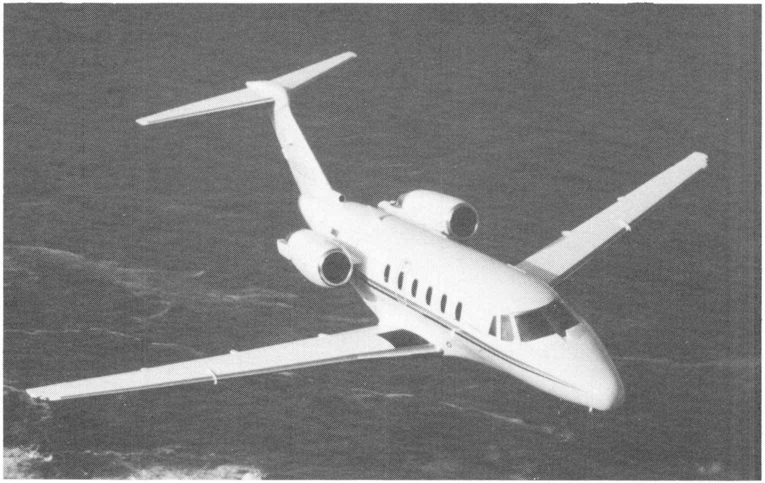


The Gulfstream II is one of the largest purpose-built executive transports, offering luxury accommodation for 19 passengers. The aircraft cruises at 976km/h and range with maximum fuel is an impressive 6,880km. The Gulfstream II first flew in 1966. Wingtip tanks can be fitted. More than 40 Gulfstream IIs were converted to II-Bs, incorporating Gulfstream III wings. The first Gulfstream III with lengthened fuselage and Whitcomb winglets, first flew on 2 December 1979. The re-engineered, advanced Gulfstream IV, with Rolls-Royce Tay turbofans, first flew in September 1985 and over 160 have been ordered. US military designation for the Gulfstream III is C-20. *Country of origin:* USA. *Silhouette and picture:* Gulfstream IV.

Cessna Citation III *Confusion:* Gulfstream II, Challenger

Power: 2 × TFE731 turbofans *Span:* 16.3m *Length:* 16.9m



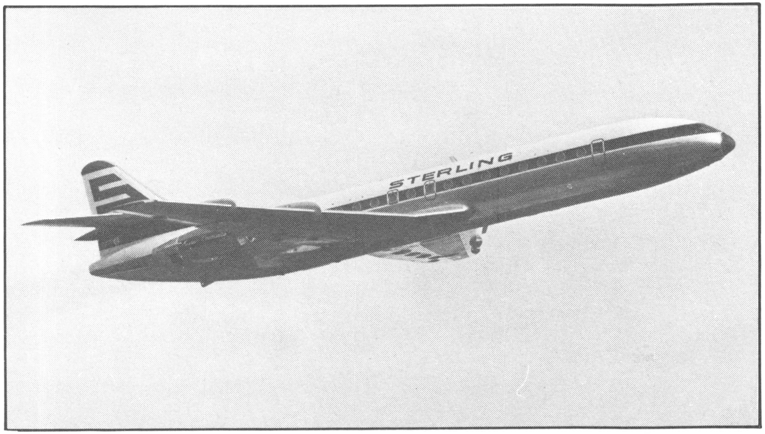


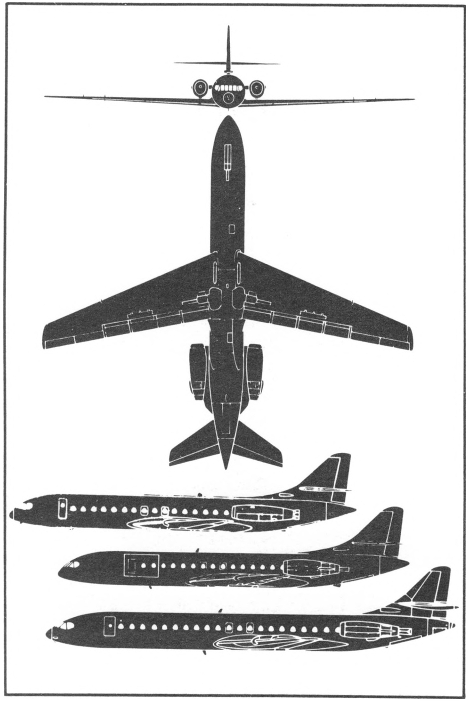
The Citation III bears little resemblance to its straight-wing predecessors, described in the next section. With a high-aspect-ratio swept wing and T-tail, the Citation III is an executive transport seating six to thirteen passengers. Cruising speed is 746km/h and range with six passengers is 4,600km. The prototype Citation III first flew in May 1979 and production deliveries began in Spring 1983. By early 1991 over 190 Citations were in service. Latest long-range Citation is the Citation X scheduled to fly in 1993. *Country of origin:* USA. *Main silhouette:* Citation III; *lower side view:* Citation X.

Confusion: One-Eleven, DC-9

Aerospatiale Caravelle

Power: 2 × Avon or 2 × JT8D turbojets *Span:* (Caravelle 12): 34.30m *Length:* 36.24m



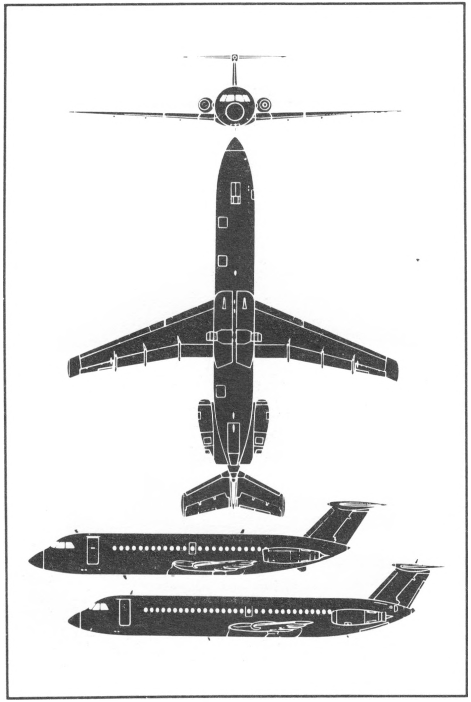


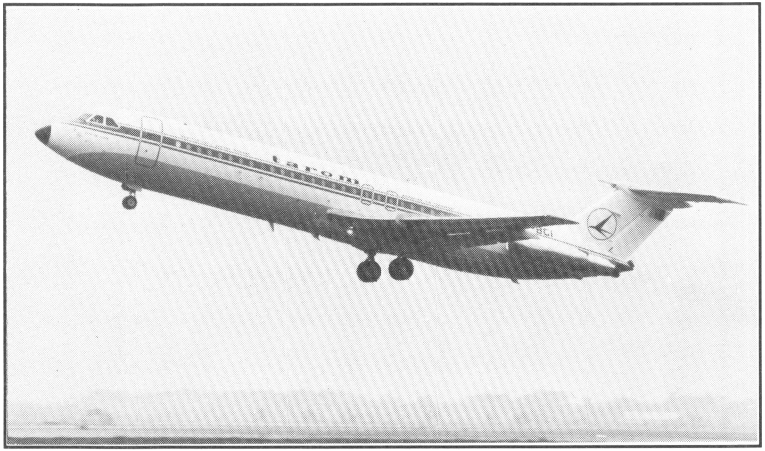
Designed originally by Sud-Est, the Caravelle was the first pure-jet short-haul airliner to go into service. Caravelles I, IA, III, VI-N and VI-R had Rolls-Royce Avon engines while the Series 10R, 11R, Super B and 12 have the Pratt & Whitney JT8D. Early versions accommodated 64–80 passengers, while the Super B and Series 12 carry 104 and 139 respectively. Maximum cruising speed of the Caravelle 12 is 825km/h and range is 3,465km. The Caravelle is still in use and 29 are operating. *Country of origin:* France. *Main silhouette:* Caravelle 11R; *top and bottom side views:* Caravelle 6R and 12 respectively. *Picture:* Caravelle 10B.

BAe One-Eleven

Confusion: Caravelle, DC-9

Power: 2 × Spey turbofans *Span:* (Series 500): 28.5m *Length:* 32.61m



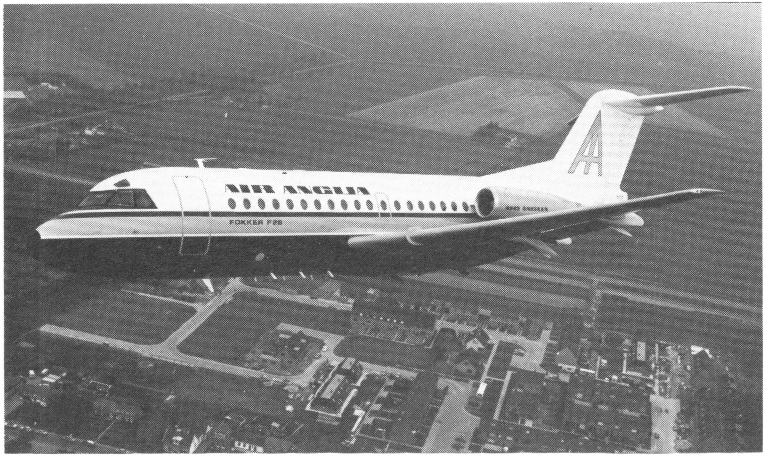


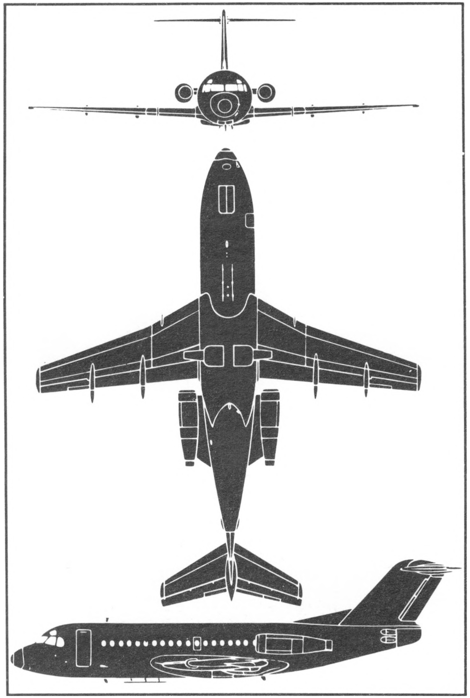
A successful short-haul transport, the One-Eleven first flew in 1963 and remains in production, under licence, in Romania by Romaero SA as the Rombac 1-11. Some 230 One-Elevens were built in the UK and the type has been developed through the Series 200, 300, 400, 475 and 500. The short-fuselage versions carry up to 89 passengers, while the long-fuselage Series 500 can accommodate up to 119. Maximum cruising speed is 871km/h, and range up to 3,000km. The Series 475 is intended for operations from very short airfields. Romanian designations are series 495 and series 560. *Country of origin:* UK. *Main silhouette:* Series 500; *upper side view:* Series 400. *Picture:* Series 560.

Confusion: One-Eleven, Gulfstream II, Trident, 'Crusty'

Fokker F28 Fellowship

Power: 2 × Spey turbofans   *Span:* (Mk 6000): 25.07m   *Length:* (Mk 6000): 26.76m



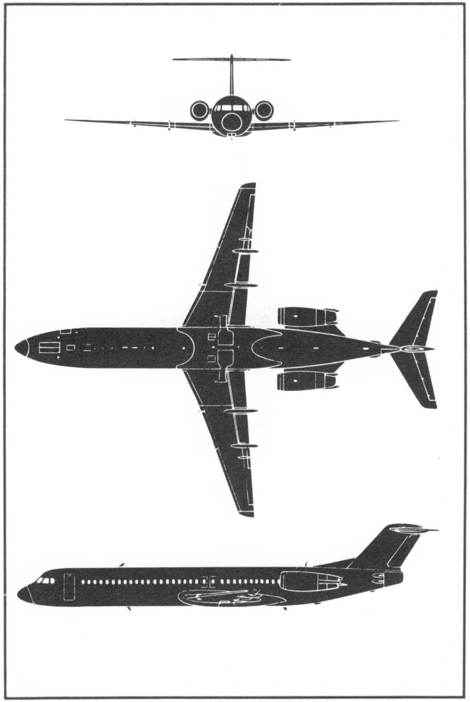


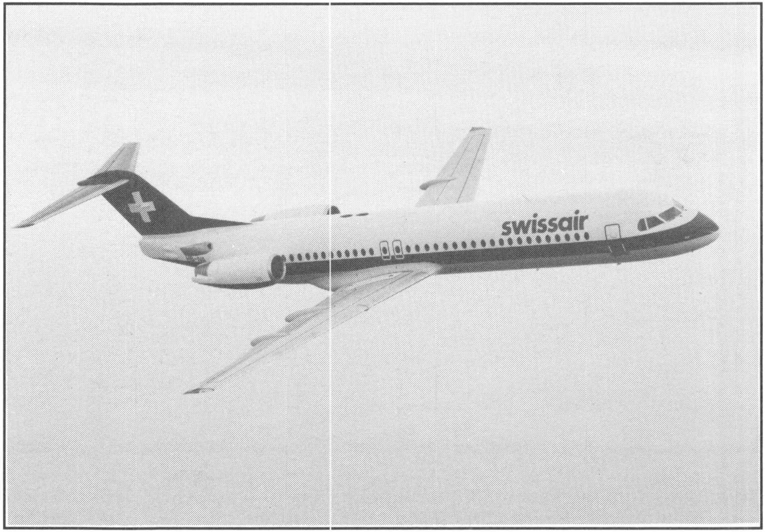
The Fellowship twin-engined short-haul transport first flew in 1967 and 241 were built, production ceasing in 1987. The different versions are: Mk 1000, short fuselage, up to 65 seats; Mk 2000, longer fuselage, 79 seats; Mk 3000, like 4000 but with short fuselage, 65 passengers; Mk 4000, long fuselage, 85 passengers; Mk 5000, wings of Mk 6000 with 65-seat cabin; Mk 6000, long-span wings and long fuselage with up to 85 seats. Fellowships have also been sold for cargo and VIP use. A distinctive feature of the F28 is the large twin-shell airbrake in the tail. Cruising speed is 670km/h. *Country of origin:* Netherlands. *Silhouette and picture:* Mk 4000.

Fokker 100

Confusion: DC-9, F28

Power: 2 × Tay turbofans *Span:* 28.08m *Length:* 35.53m

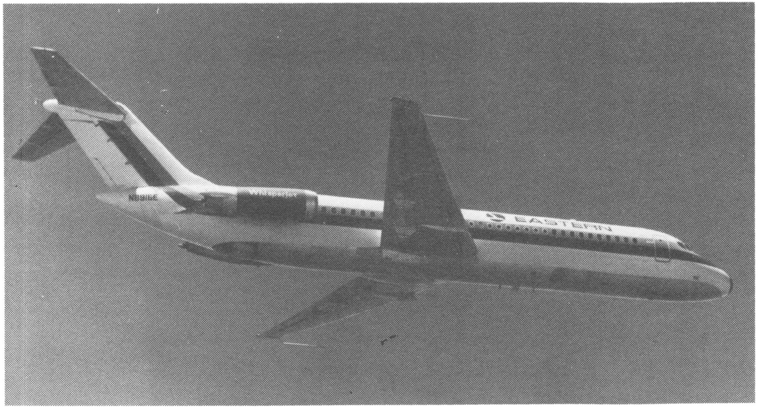


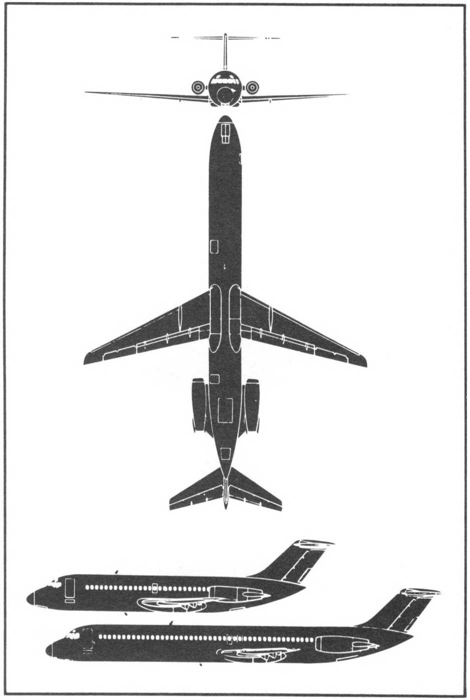


First flown in November 1986, the 100/110-seat Fokker 100 is a complete redesign of the F28 which rivals the BAe 146. Short Brothers are responsible for wing development and MBB for large parts of the fuselage and tail. Range, with 107 passengers, is 2,418km. Deliveries began early in 1989 and by end 1991, there were firm orders for 200. *Country of origin:* Netherlands.

McDonnell Douglas DC-9

Power: 2 × JT8D turbofans *Span:* (Series 40): 28.47m *Length:* (Series 40): 38.28m



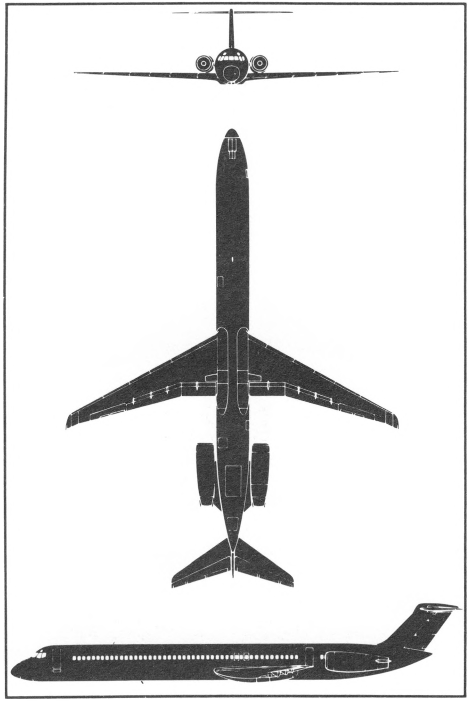


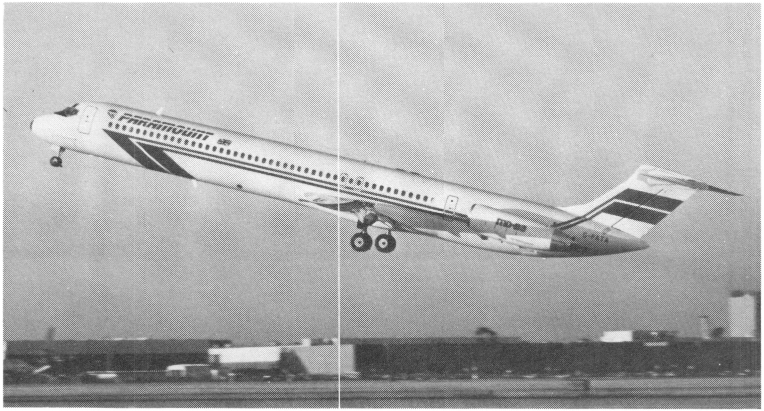
First flown in 1965, the DC-9 was steadily developed and stretched to meet a demand for more seats. Initially, as the DC-9 Series 10, the aircraft carried up to 90 passengers; the long-fuselage Series 30 then appeared, with extended wings and capacity for up to 119. Extended wings and short fuselage resulted in the Series 20, while further fuselage stretches produced the Series 40 (125 passengers) and Series 50 (139 passengers). Military variants are designated C-9A Nightingale and VC-9C by the USAF and C-9B Skytrain II by the USN. Around 1,000 DC-9s were ordered. The Series 40 cruises at 821km/h and has a range of up to 1,723km. *Country of origin:* USA. *Main silhouette:* DC-9-50; *upper side view:* DC-9-10. *Picture:* DC-9-30.

McDonnell Douglas MD-80

Confusion: DC-9 Series 40/50

Power: 2 × JT8D turbofans *Span:* 32.85m *Length:* 41.3m



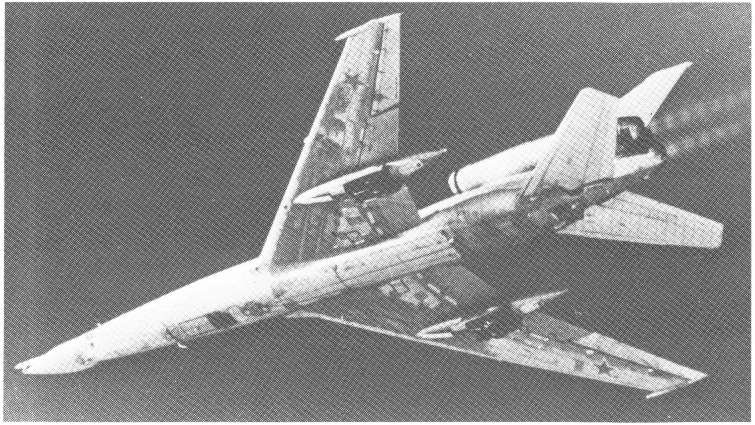


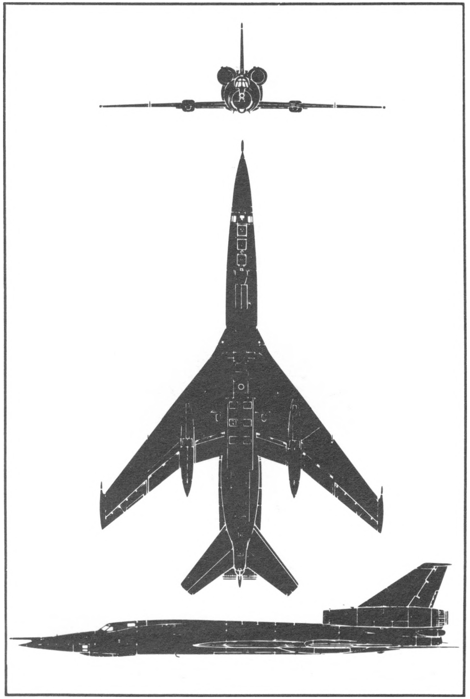
Formerly known as the DC-9 Super 80, the MD-80 is probably the ultimate in stretching. It is 13.26m longer than the original DC-9 Series 10, while passenger capacity has gone up from 90 to 172. Wing area is 28 per cent greater than that of the DC-9 Series 50 and tailplane area is enlarged. Three versions of the MD-80 family are in production, MD-81, MD-82 and MD-83, differing primarily in engines, weights and ranges. The MD-87 is a short fuselage (36.30m) version of the MD-80. The MD-88 has internal and systems refinements. The MD-83 can carry 155 passengers more than 4,670km with a cruising speed of Mach 0.76. The MD-80 first flew in 1979 and by late 1991, 1,200 had been ordered. A follow-on aircraft, with IAE V2500 turbofans, is the MD-90 which is due to fly in early 1993. *Country of origin:* USA. *Picture:* MD-83.

Confusion: 'Fiddler'

Tupolev Tu-22 'Blinder'

Power: 2 × VD-7 reheated turbojets *Span:* 27.74m *Length:* 40.5m



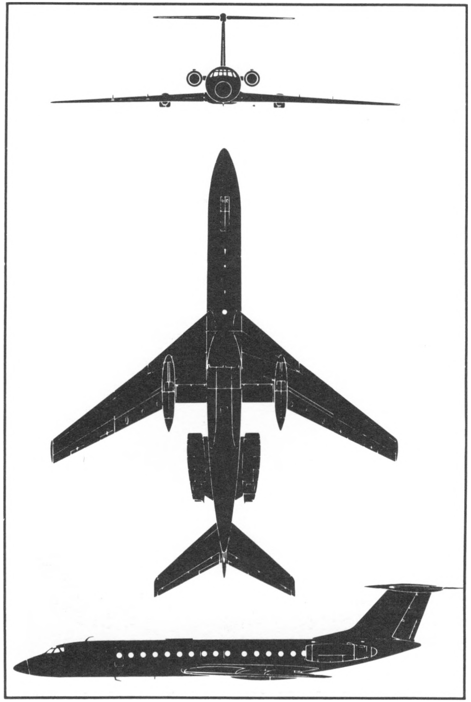


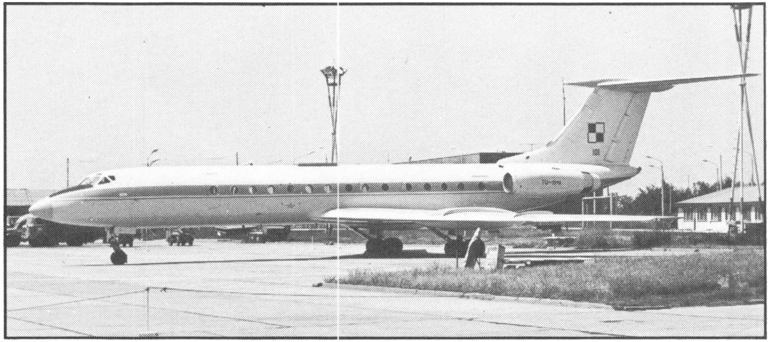
A most unusual military design, the 'Blinder' bomber has two large turbojets mounted above the rear fuselage, a sharply swept wing and main undercarriage housed in wing fairings. First flown around 1960, the 'Blinder' is capable of Mach 1.5 at altitude. In basic form, as 'Blinder A', the type was used as a reconnaissance bomber, while the 'B' carried a 'Kitchen' missile under the fuselage. The maritime reconnaissance 'Blinder C' is also equipped with a variety of electronic intelligence equipment. A trainer version, 'Blinder D', has an additional raised cockpit. A flight refuelling probe is carried in the nose. *Country of origin:* Russia. *Silhouette:* 'Blinder C'. *Picture:* 'Blinder B'.

Tupolev Tu-134 'Crusty'

Confusion: Trident, One-Eleven, DC-9, 727

Power: 2 × Soloviev turbofans *Span:* (Tu-134): 29m *Length:* 34.35m



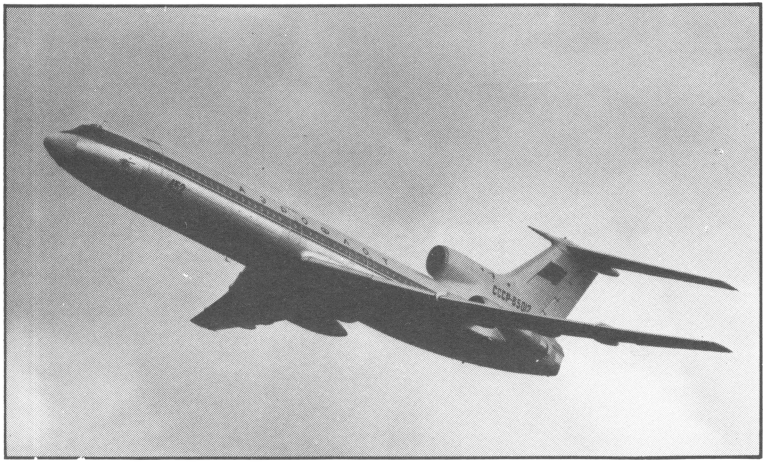


Designed as a successor to the Tu-124 'Cookpot', the Tu-134, NATO code-named 'Crusty', followed the contemporary Western trend of rear-mounted turbofans and T-tails. The Tu-124-type main undercarriage, housed in wing fairings, was retained. First flown in 1962, the 72-seat type went into service with Aeroflot in 1967. A stretched version, the 80-seat Tu-134A, entered service in 1970. Some Tu-134As have the glazed nose replaced with a streamlined radome. The Tu-134 has a maximum cruising speed of 870km/h and a range of 2,400km. Internal modification schemes converted aircraft to B, B-1 and B-3 standard. Over 700 Tu-134/134As were built and over 500 are still in use. *Country of origin:* Russia. *Silhouette and picture:* Tu-134A.

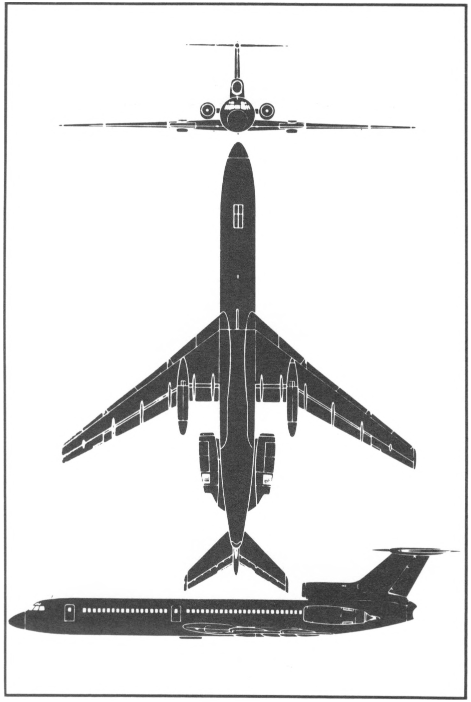
Confusion: Trident, 727, DC-9, One-Eleven

Tupolev Tu-154 'Careless'

Power: 3 × Kuznetsov or Soloviev turbofans *Span:* 37.55m *Length:* 47.9m



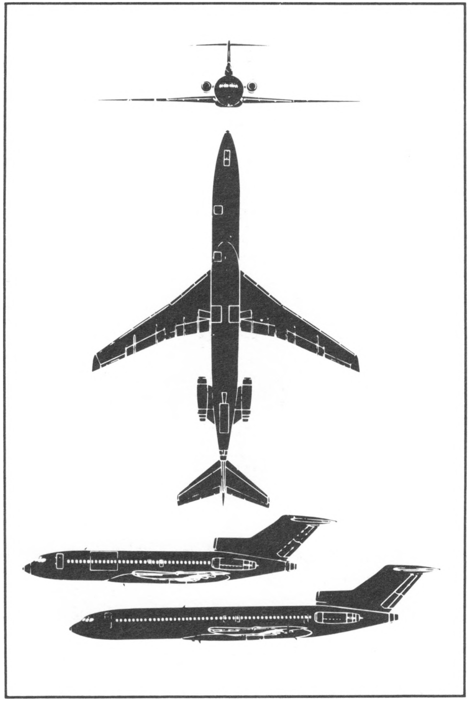
The Tu-154, code-named 'Careless', was designed as the Russian counterpart to the Boeing 727 and the Trident, but with the added ability to operate from short, rough runways. The trijet, T-tail 'Careless' retains the characteristic Tupolev main undercarriage housed in wing fairings. First flown in 1968, the 'Careless' entered service with Aeroflot in 1972 and has been exported to other Eastern European countries and to Egypt, Syria and Yemen. The last version is the Tu-154M with more economical Soloviev engines. Some 700 Tu-154s were built. The -154M seats up to 180 passengers and has a range of up to 6,600km. *Country of origin:* Russia.

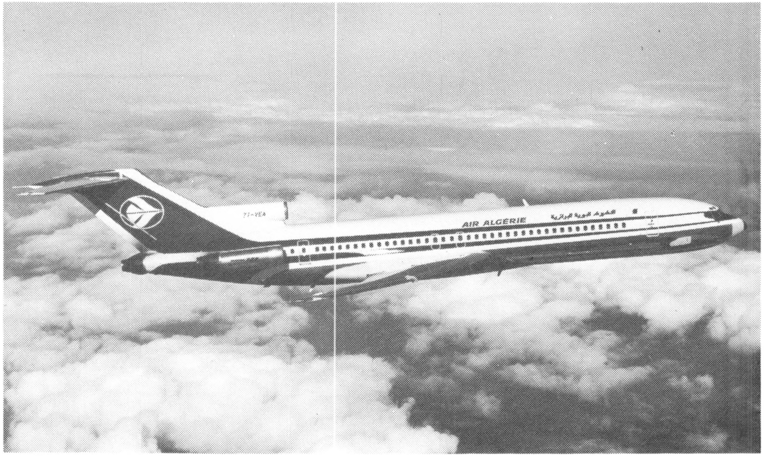


Boeing 727

Confusion: Trident, 'Careless', DC-9, One-Eleven

Power: 3 × JT8D turbofans *Span:* (-200): 32.92m *Length:* (-200): 46.69m



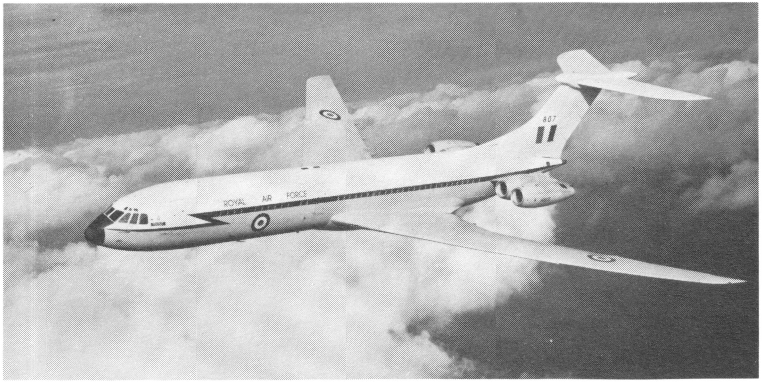


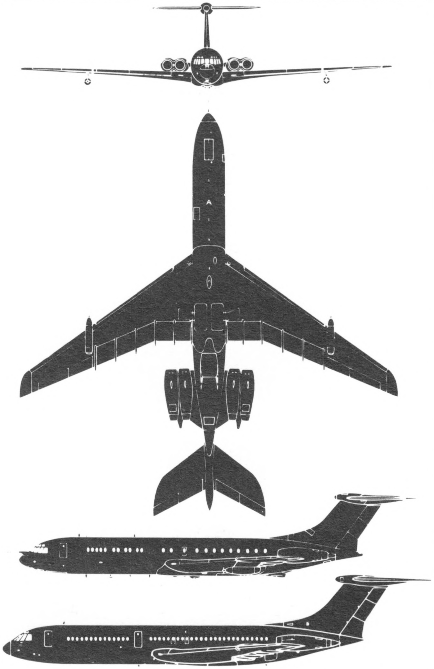
The most widely sold of all Western jet airliners, 1,821 Boeing 727s were built before the type went out of production in August 1984. The only rear-engined aircraft in the Boeing family, the 727 first flew in 1963. The 727-100 seats up to 131 passengers and can be converted to carry cargo. The stretched -200, seating up to 189 passengers, became available in the mid-1960s. This was followed by the Advanced 727-200 with more range. The -200 has range of 4,260km and an economical cruising speed of 917km/h. A re-engined version with Tay turbofans is now being offered. *Country of origin:* USA. *Main silhouette:* -200; *upper side view:* -100. *Picture:* -200.

Confusion: 'Classic'

BAe VC10/Super VC10

Power: 4 × Conway turbofans *Span:* 44.55m *Length:* (Super VC10): 52.32m

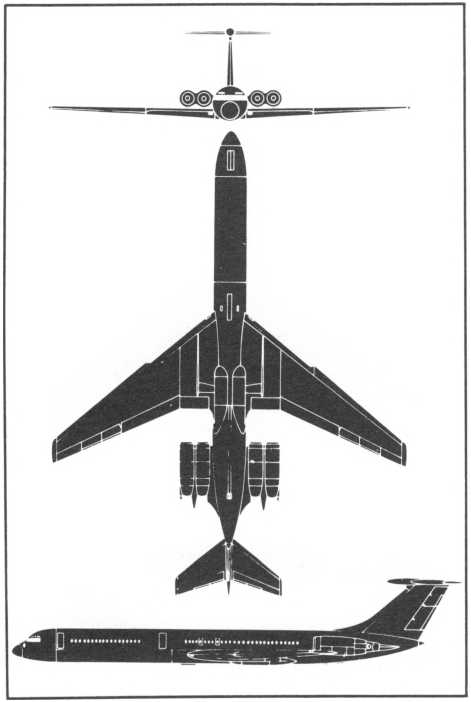


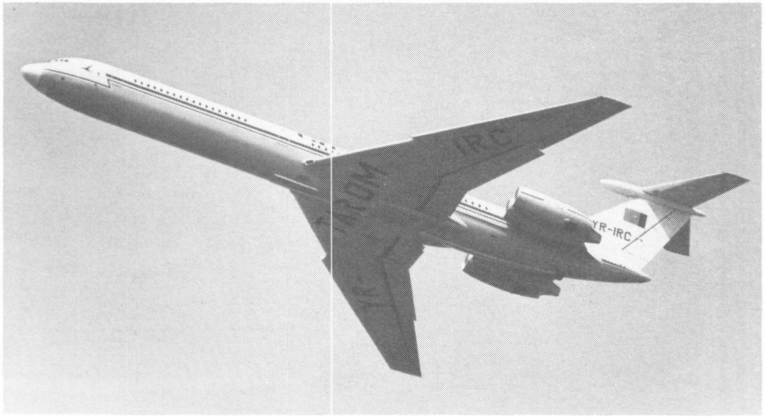


The VC10 was designed to meet a British Overseas Airways Corporation requirement for a long-range airliner with good hot-and-high airfield performance. The type has proved very robust and reliable in service. The VC10 first flew in 1962, followed by the larger, longer-fuselage Super VC10 in 1964. The Super VC10 has a maximum range of 11,470km and cruises at 886km/h. The VC10 is used by the RAF as a standard passenger/freight transport and nine have been converted as three-point in-flight refuelling tankers with more likely to follow. As a tanker, the VC10 is known as the VC10K Mk 2 and the Super VC10 as the VC10K Mk 3 and K Mk 4. A total of 54 VC10/Super VC10s were built. *Country of origin:* UK. *Main silhouette:* K Mk 2; *upper side view:* VC10. *Picture:* VC10 C1.

Ilyushin Il-62 'Classic' *Confusion:* VC10/Super VC10

Power: 4 × Kuznetsov or 4 × Soloviev turbofans *Span:* 43.2m *Length:* 53.12m

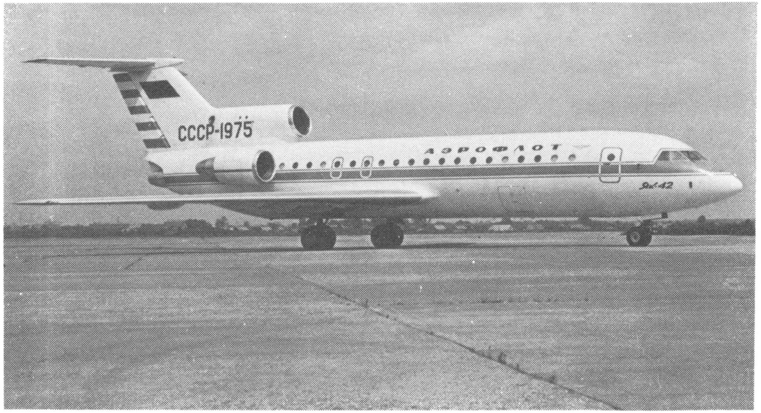


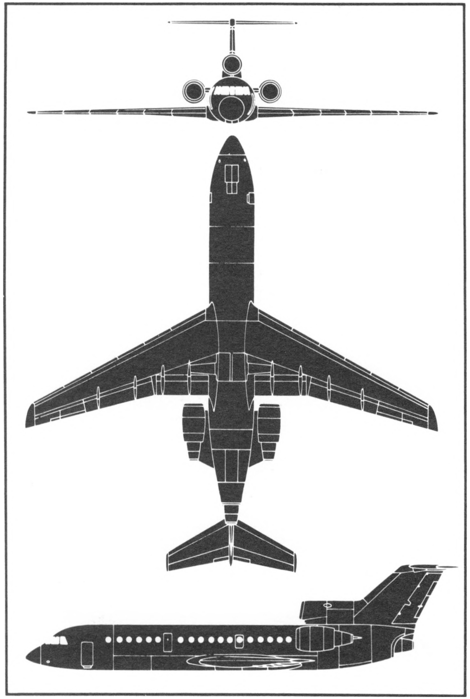


Russia's first commercial four-engined long-range jet transport, the Il-62, code-named 'Classic', first flew in 1963 and went into service with Aeroflot in 1967. 'Classic' and the VC10 are the only rear-engined four-jet airliners to be built. 'Classic' normally seats 186 passengers. The basic aircraft is powered by Kuznetsov engines, while the Il-62M, introduced in 1974, has Soloviev turbofans. The Il-62M has more power, more fuel and better payload range figures. The aircraft cruises at up to 900km/h and in Il-62M form has a maximum range of 10,300km. Over 230 Il-62s have been built. Range with maximum payload 23,000kg and reserves is 8,000km. *Country of origin:* Russia. *Silhouette and picture:* Il-62M.

Yakovlev Yak-42 'Clobber'

Power: 3 × D-36 turbofans *Span:* 34.90m *Length:* 36.38m



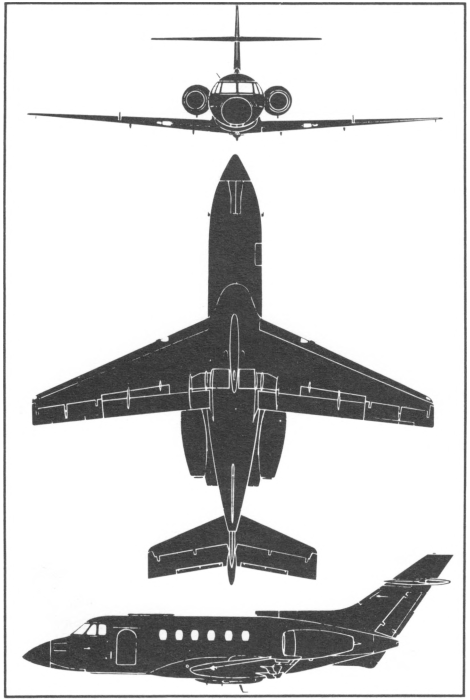


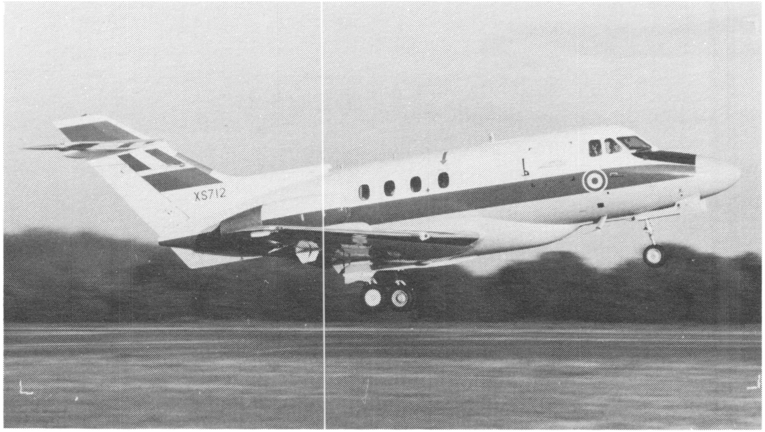
Following on from the straight-wing Yak-40 'Codling', the Yakovlev bureau designed the larger swept-wing Yak-42, code-named 'Clobber', which first flew in March 1975 and went into service with Aeroflot in 1980. The 'Clobber' is replacing the Tu-134 'Crusty' and it is expected that up to 2,000 of the type may ultimately be built. The cabin seats up to 120 passengers and the range of the aircraft is 2,000km, cruising at 750km/h. 'Clobber' is being offered for export in straight passenger form and as a combined passenger/cargo aircraft. A re-designed stretched version, the Yak-42M, has been built. This will seat up to 168 passengers. *Country of origin:* Russia.

BAe 125

Confusion: Falcon, Corvette

Power: 2 × Viper turbojets or 2 × TFE731 turbofans *Span:* 14.33m *Length:* (Series 700): 15.46m



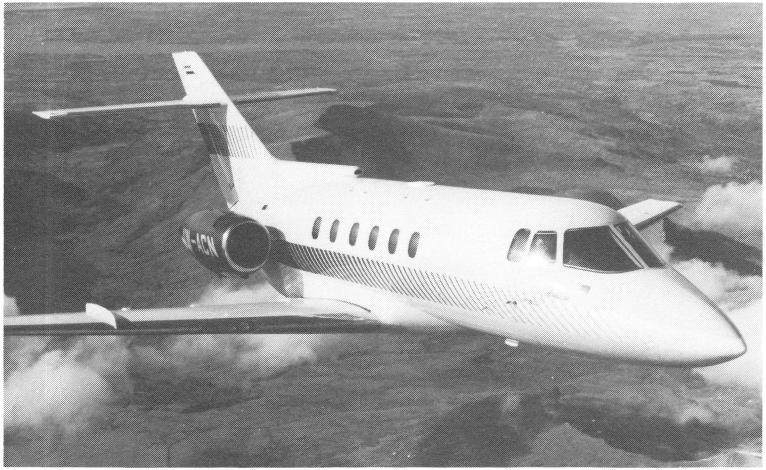


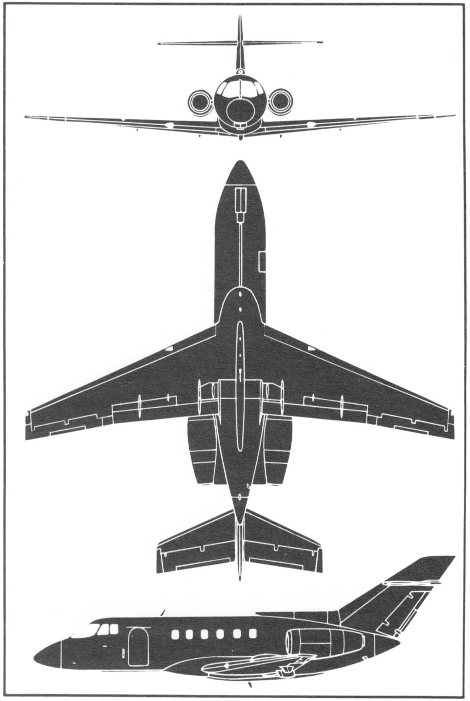
Some 573 BAe 125 twinjet business aircraft had been sold worldwide before the Series 800 was introduced. Main versions were the Series 400, 600 and 700. The 600 has a longer fuselage than earlier variants and seats up to 14 passengers. All 125s up to and including the Series 600 are powered by Rolls-Royce Viper engines. Thereafter, the company introduced the Series 700, with Garrett AiResearch turbofans and a longer, more pointed nose. The 125-700 cruises at 747km/h and has a range of 4,318km. The Viper-powered 125s used in the RAF are called the Dominie T1 as trainers and CC1 and CC2 as communications aircraft. *Country of origin:* UK. *Silhouette:* Series 700. *Picture:* Dominic TI.

Confusion: Falcon, Corvette, 125 Series 700

BAe 125 Series 800

Power: 2 × TFE 731 turbofans *Span:* 15.66m *Length:* 15.6m



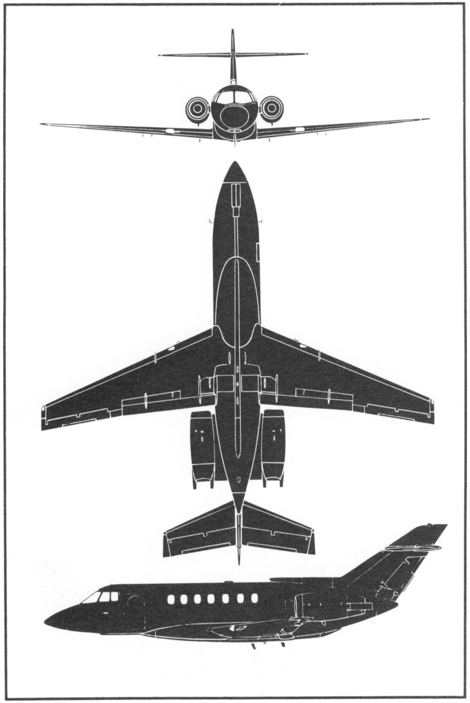


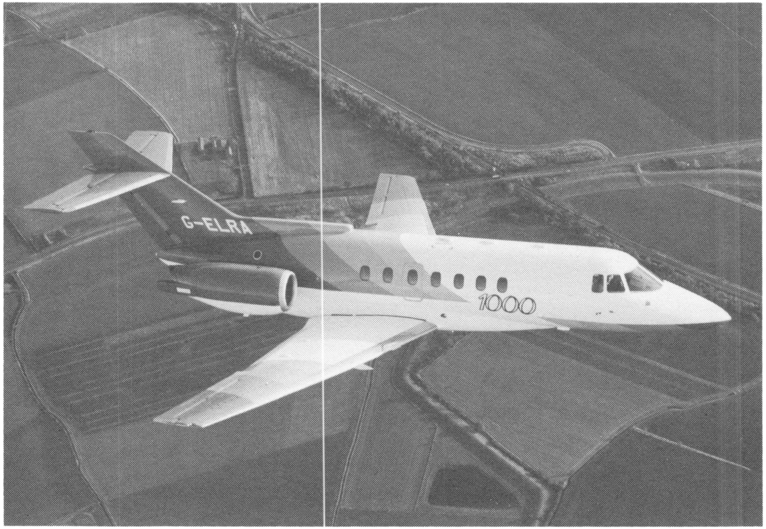
Successor to the 600 and 700 Series 125s, the Series 800 has a redesigned wing, changed fin shape, curved windscreen and the prominent rear underkeel of the earlier versions is deleted. Range, with maximum payload, has been increased to 5,318km. The USAF ordered six 125 series 800 for combat flight inspection and navigation work as the C-29A. The Series 800 continues in production. *Country of origin:* UK.

BAe 1000

Confusion: 125 series 800, Falcon

Power: 2 × PW305 turbofans *Span:* 15.66m *Length:* 16.42m



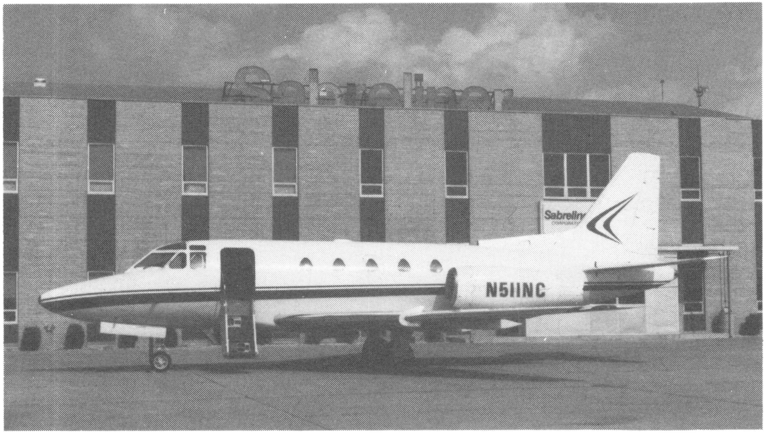


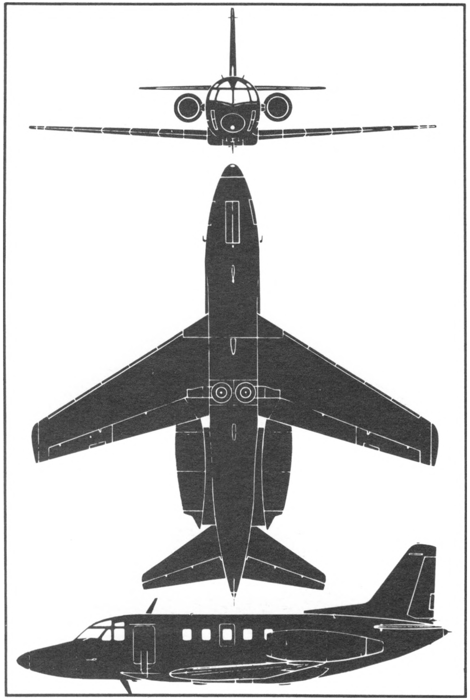
Offering a 27 per cent increase in range compared with the 125 series 800, the BAe 1000 has fuselage extensions fore and aft of the wings and an additional window on each side. Up to 15 passenger seats can be fitted. First flight of the 1000 was in June 1990. The 1000 has intercontinental range of 6,736km with full fuel, economical cruising speed is 745km/h and take-off balanced field length is 1,830m. Production deliveries have commenced. *Country of origin:* UK.

Confusion: BAe 125, Falcon, Corvette

Sabreliner

Power: 2 × JT12A turbojets or 2 × CF700 or TFE731 turbofans *Span:* (Series 65): 15.37m *Length:* 14.30m

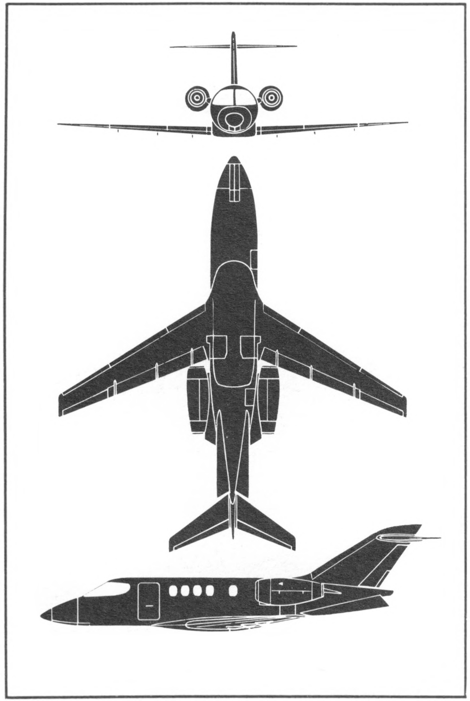


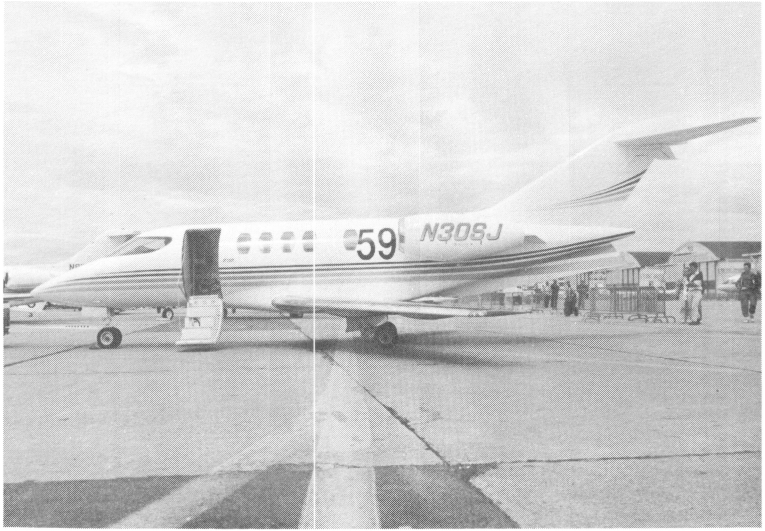


Originally supplied in quantity to the USAF and US Navy as the T-39 and CT-39, the Rockwell Sabreliner was developed into the Series 40 and 60 executive transports. The former carries nine passengers and the latter ten in a lengthened fuselage, both powered by JT12A engines. The 75A is powered by CF700 turbofans and has various refinements, including a wider-span tailplane. Over 600 Sabreliners were delivered including the Sabreliner 65, with TFE731 engines and a redesigned wing. Eight passengers can be carried. In 1983 the Sabreliner Corp took over the Sabreliner Division of Rockwell International to provide support for aircraft in service and to provide modifications. *Country of origin:* USA. *Silhouette:* Series 75A. *Picture:* Series 65.

Swearingen SJ30 *Confusion:* Diamond

Power: 2 × FJ44 turbofans *Span:* 11.0m *Length:* 12.9m



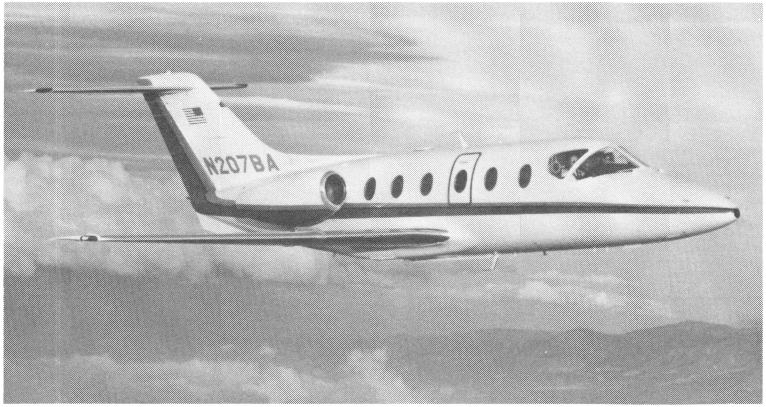


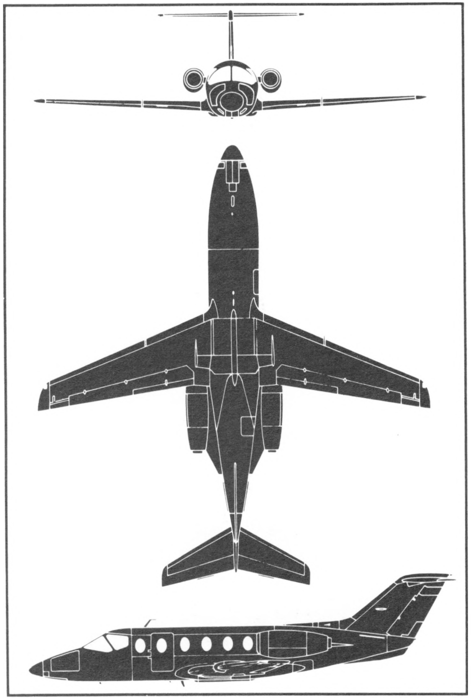
A six-seat pressurised business jet, the Swearingen SJ30 has previously been known as SA-30 Fairjet, SA-30 Gulfjet and Swearingen/Jaffe SJ30. First flight was in February 1991. The SJ30 cruises at 765km/h and has an IFR range of 3,206km. *Country of origin:* USA.

Confusion: Gulfstream II, Challenger, BAe 125

Beechcraft Model 400 Beechjet/Diamond

Power: 2 × JT15D turbofans *Span:* (Beechjet): 13.25m *Length:* (Beechjet): 13.15m



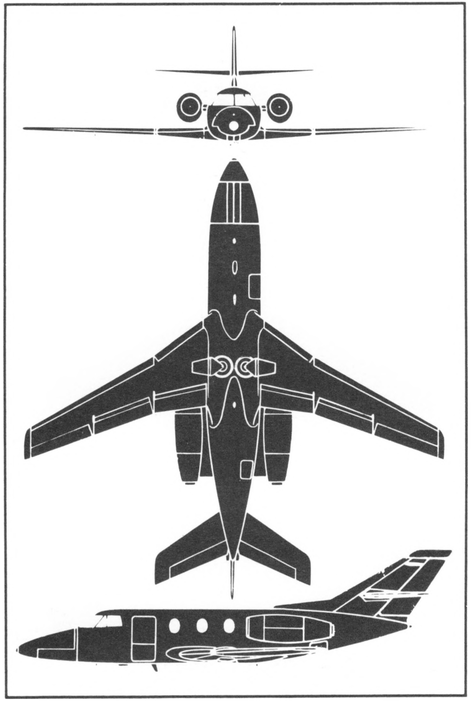


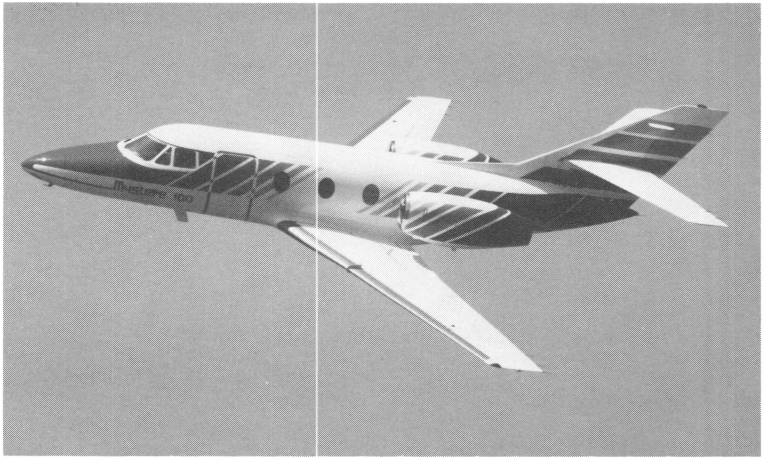
Originally made in component form in Japan, the Mitsubishi Diamond twin-engined executive aircraft was assembled in Texas. The six to eight passenger Diamond I first flew in August 1978, followed on the production line by the uprated Diamond IA. The Diamond II with improved payload and performance flew in June 1984. In December 1985 Beech Aircraft Corporation acquired the Diamond II programme and, as the Beechjet, it is now manufactured in America. Beechjet 400A flew in September 1989 and deliveries commenced November 1990. Beechjet 400T is a tanker transport trainer with USAF designation T-1A Jayhawk. A total of 211 have been ordered. Beechcraft 400A cruises at 834km/h and has a range of 3,537km. *Countries of origin:* USA/Japan. *Picture:* Beechjet.

Dassault-Breguet Mystère-Falcon 10/100

Confusion: Falcon 20, BAe 125, Corvette

Power: 2 × TFE731 turbofans *Span:* 13.08m *Length:* 13.85m



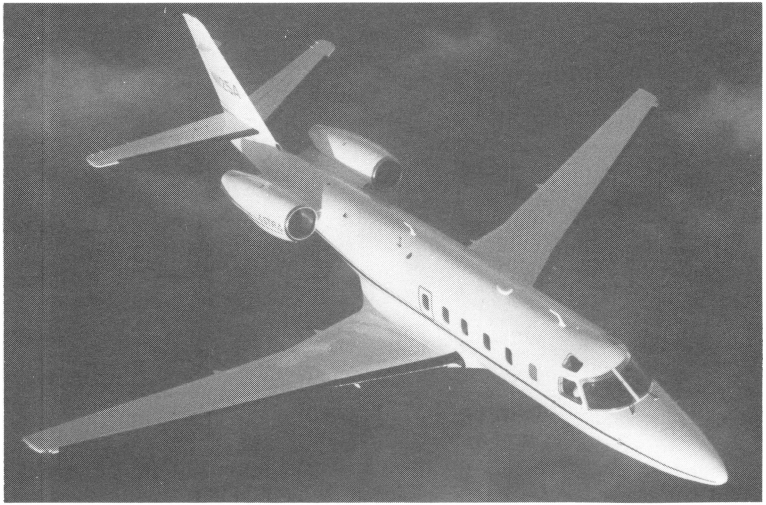


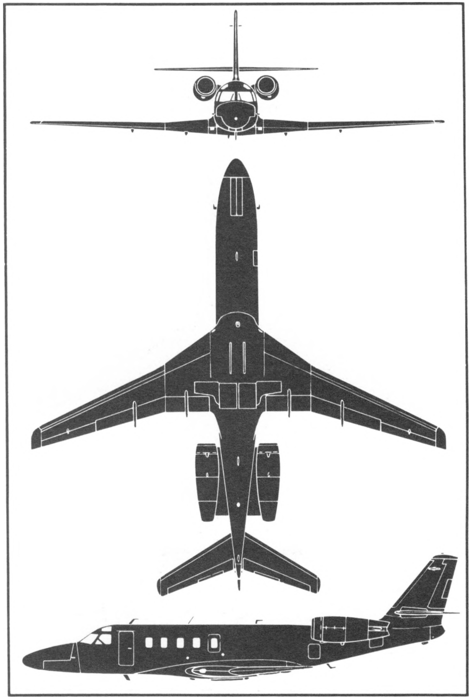
Essentially a scaled-down version of the Mystère-Falcon 20, the Mystère-Falcon 10 executive aircraft first flew in December 1970 and deliveries began in 1973. The 10 was replaced on this production line by the 100 with increased take-off weight and a fourth cabin window on the starboard side. The French Navy uses seven 10s as Mystère-Falcon 10 MER for fighter intercept training. Several hundred of the two types have been ordered. Fast cruise of the Falcon 100 is 912km/h and range 3,480km. Last production 100 delivered September 1990. *Country of origin:* France. *Silhouette:* Mystère-Falcon 10. *Picture:* Mystère Falcon 100.

Confusion: Mystère Falcon 10/100

IAI 1125 Astra

Power: 2 × TFE731 turbofans *Span:* 16.05m *Length:* 16.94m



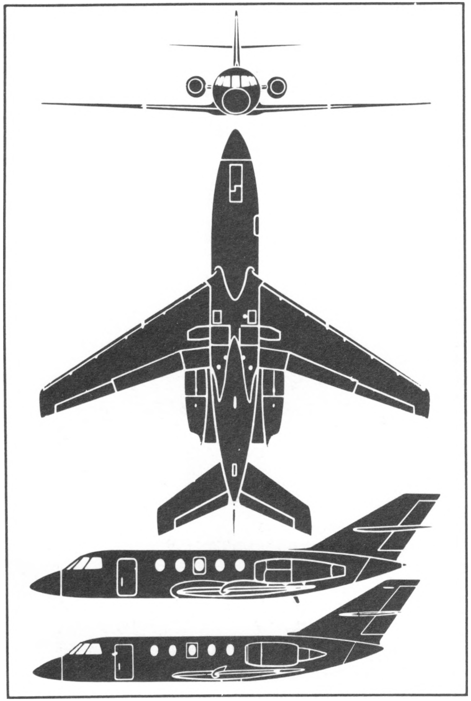


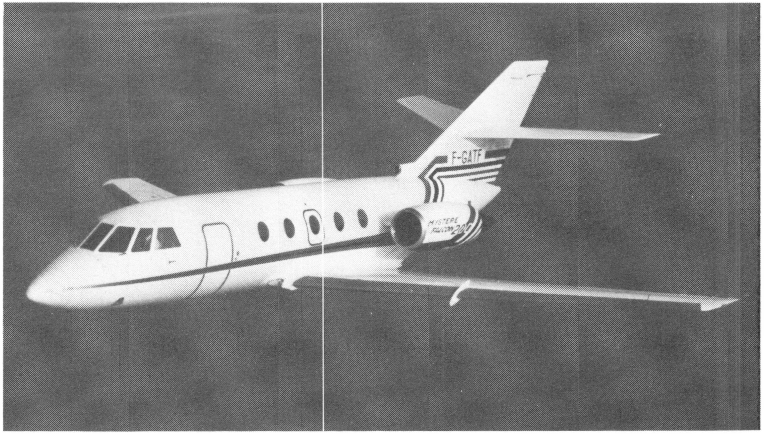
Developed from the straight wing Westwind, the swept-wing 1125 Astra is a business aircraft seating two crew and up to six passengers. Maximum cruising speed is 862km/h and maximum range with long-range tanks and four passengers is 5,763km. The Astra first flew in March 1984. An Israel Aircraft Industries subsidiary company in the USA, called Astra-Jet Corporation, has been concerned with marketing the aircraft. *Country of origin:* Israel.

Dassault-Breguet Mystère-Falcon 20/200

Confusion: Corvette, BAe 125, Falcon 10

Power: 2 × CF700 or 2 × ATF3-6 turbofans *Span:* 16.30m *Length:* 17.15m



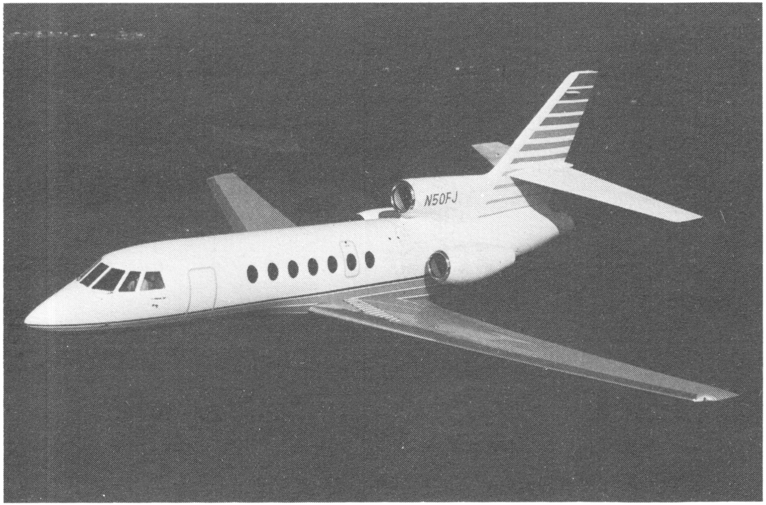


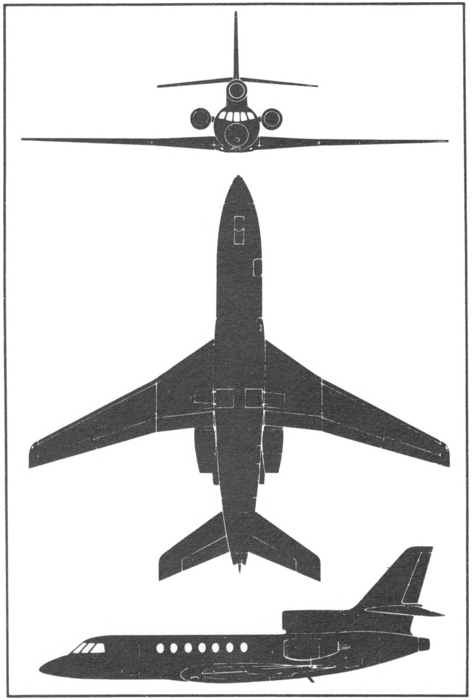
Dassault and Aerospatiale combined to build the successful Mystère 20/Falcon 20 8/10-seat executive aircraft. First flown in 1963, the aircraft is also used as an air force transport, freighter and trainer. Some 500 were built and the type is in use in many places round the world. Main versions are the 20F and 200, the latter having Garrett AiResearch ATF3-6 engines in place of GE CF700s. The Mystère-Falcon 200 maritime surveillance aircraft is known in the French Navy as the Gardian and in the US Coast Guard as the HU-25A Guardian. This variant has large side windows for observation. Latest version, for a variety of military purposes, is the Gardian 2. *Country of origin:* France. *Silhouette:* 20F; *lower side view:* 200. *Picture:* 200.

Dassault-Breguet Falcon 50

Confusion: 'Clobber', Falcon 10, Falcon 20

Power: 3 × TFE731 turbofans *Span:* 18.86m *Length:* 18.5m



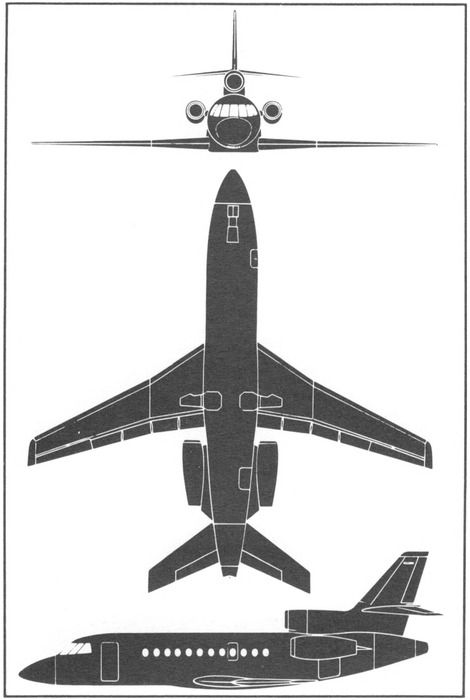


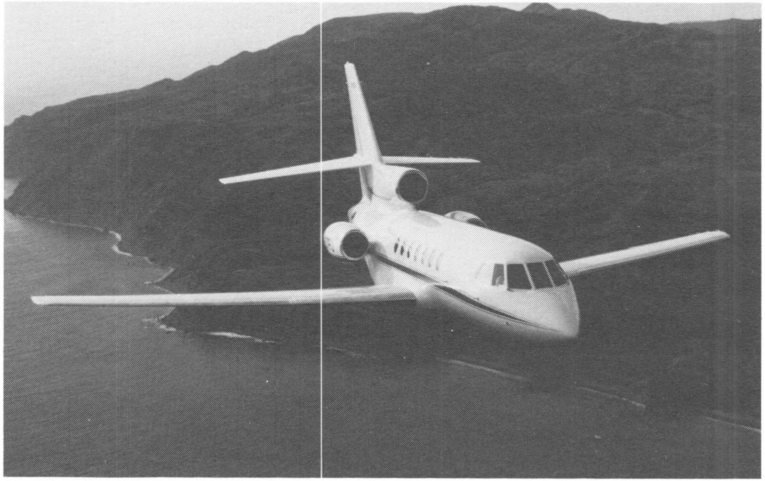
Seeking more range for executive and other duties, Dassault designed a three-engined development of the Falcon series with new wings but retaining the front and centre-fuselage sections of the Falcon 200. The resulting Falcon 50 seats eight to nine passengers and has a large fuselage fuel tank. Initial deliveries were made in 1979, following a first flight in November 1976. Maximum cruising speed is 870km/h and range with four passengers is 5,560km. A total of 212 Falcon 50s have been built. *Country of origin:* France.

Dassault-Breguet Mystère-Falcon 900

Confusion: Falcon 100, 200, 50

Power: 3 × TFE-731 turbofans *Span:* 19.33m *Length:* 119m



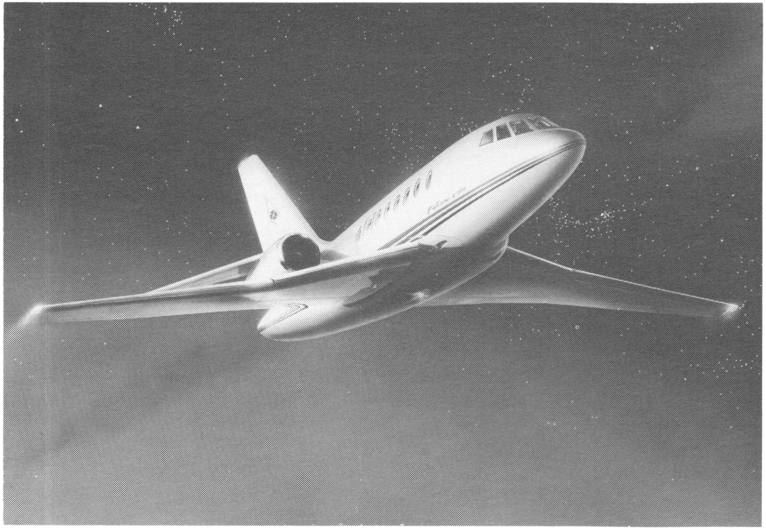


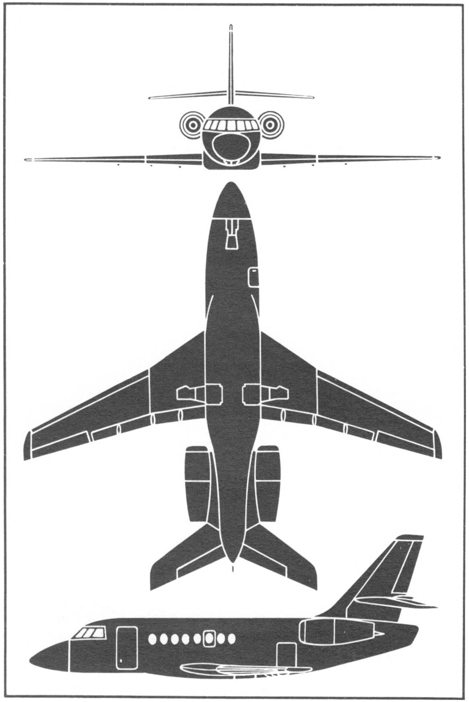
First flown in September 1984, the Mystère-Falcon 900 is an intercontinental tri-jet executive transport seating 19 passengers. Similar in layout to the Mystère-Falcon 50, the 900 has increased dimensions and a larger fuselage. Range, cruising at Mach 0.75, with maximum fuel and eight passengers, is 7,035km. Production Mystère-Falcon 900s commenced delivery in December 1986. Japan has ordered two maritime surveillance equipped Falcon 900s. Production aircraft now designated 900B with uprated engines. *Country of origin:* France.

Confusion: Mystere-Falcon 50/900

Dassault Mystère-Falcon 2000

Power: 2 × CFE 738 turbofans *Span:* 19.3m *Length:* 19.23m



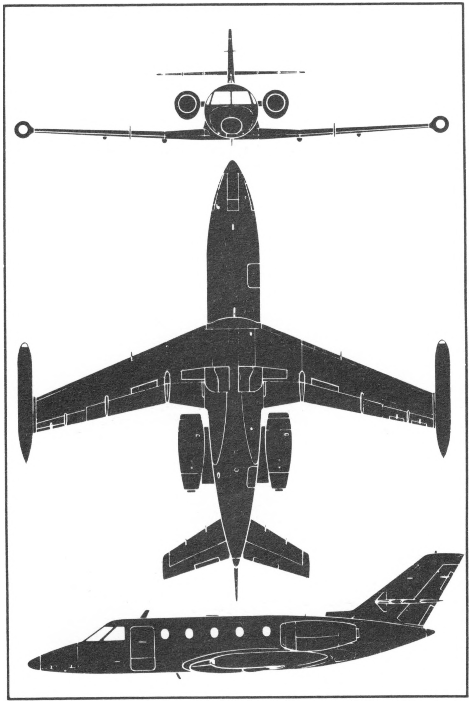


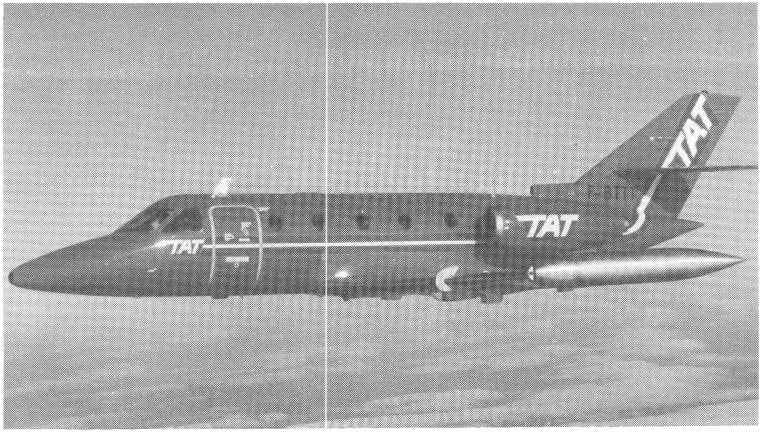
Originally known as the Falcon X, the Mystère-Falcon 2000 is a twin-jet business aircraft based on the tri-jet Falcon 900 design and having the same cross-section. Accommodation is for two crew and up to 12 passengers. Maximum cruising speed will be Mach 0.83/0.85 and range, with maximum fuel and eight passengers, will be 5,550km. Deliveries are expected to start in 1995. *Country of origin:* France. *Picture:* Artist's impression.

Aerospatiale SN 601 Corvette

Confusion: BAe 125, Learjet, Falcon 10, Falcon 20

Power: 2 × JT15D turbofans *Span:* 12.87m *Length:* 13.83m

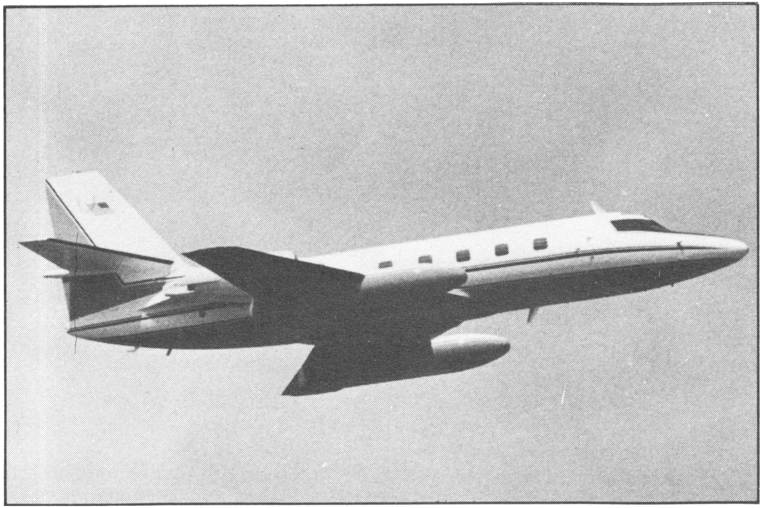


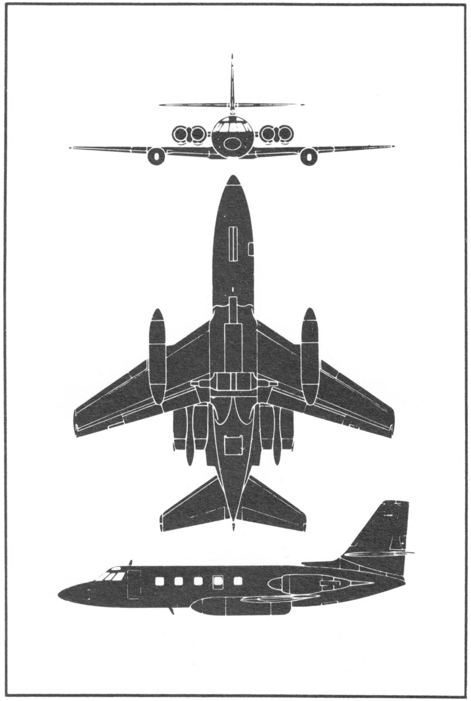


Produced only in small numbers, the Corvette is a 6/14-passenger executive/air taxi/freighter aircraft first flown as the SN 600 in the Summer of 1970. Maximum cruising speed is 760km/h and range 1,555km. Fuel tanks are fitted to the wingtips. A crew of two is carried. Production was terminated after completion of the 40th example. Performance figures include an economical cruising speed of 566km/h at 11,900m; maximum rate of climb at sea level of 823m/min; and service ceiling of 12,500m. *Country of origin:* France.

Lockheed JetStar

Power: 4 × JT12 or 4 × TFE731 turbofans *Span:* 16.16m *Length:* 18.42m



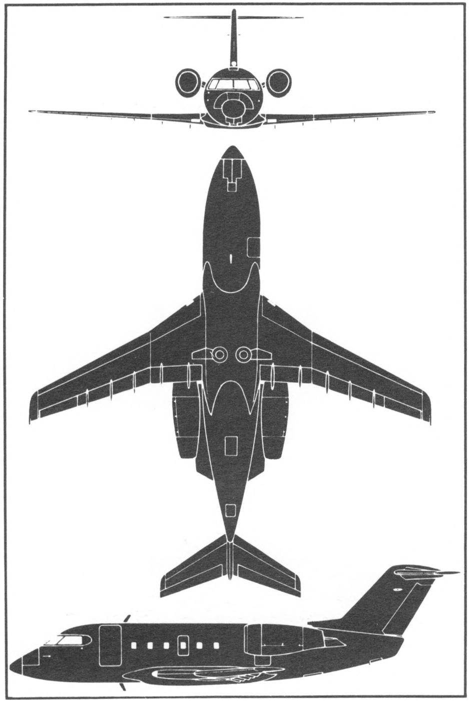


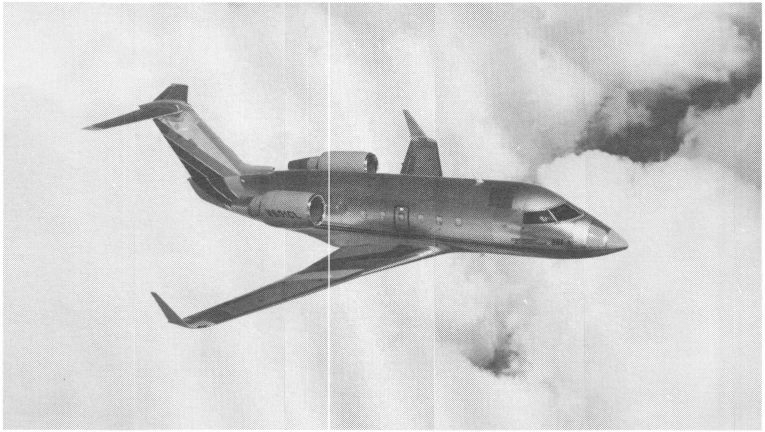
Derived from the original twin-Orpheus JetStar I, the JetStar II is powered by four TFE731 turbofans. The JetStar II seats up to 10 and cruises at 817km/h. Differences from earlier versions include a new engine nacelle shape, shortened long-range tanks on the wings, and the addition of a small air intake in the base of the fin. Production is complete. A re-engining programme is now on offer. *Country of origin:* USA. *Silhouette and picture:* JetStar II.

Canadair Challenger

Confusion: BAe 125, Falcon 10, Falcon 20, Corvette

Power: 2 × ALF502 or 2 × CF34 turbofans *Span:* 18.83m *Length:* 20.82m



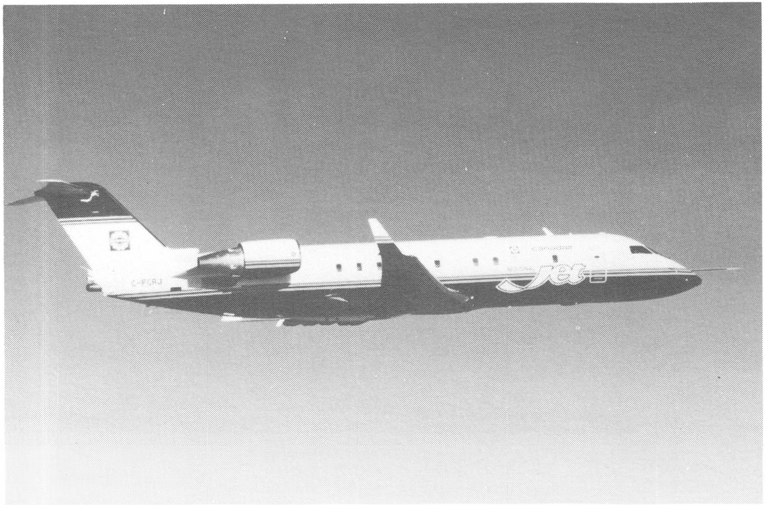


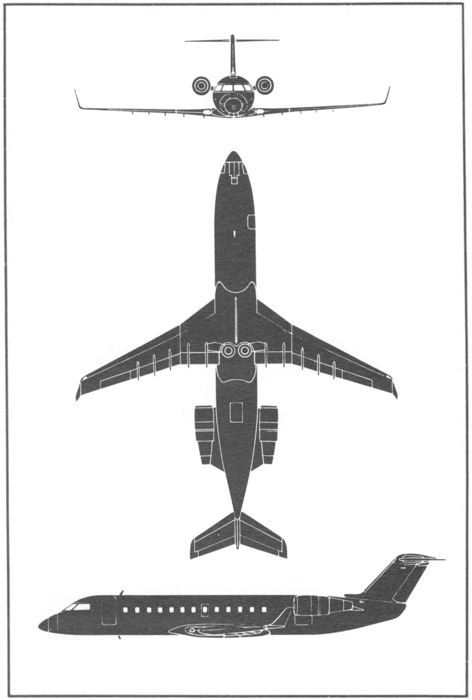
Designed for use as an executive jet, commuter airliner and express cargo aircraft, the Canadair CL-600 Challenger (later re-designated Challenger 600) first flew in August 1978. It has a roomy cabin seating up to 28 passengers and has a cruising speed of 745km/h. The next version is the Challenger 601 with GE CF34 engines and winglets. By March 1989 some 107 Challengers had been ordered. A number of Challengers have been ordered for military use and as VIP transports. A long-range development, 601-3A/ER, is now available, with a range of 6,764km, while a standard upgraded engine variant is the 601-3A. Latest version is 600-S. Total deliveries by mid-1991 were 236. *Country of origin:* Canada. *Silhouette:* Challenger 600. *Picture:* Challenger 601.

Confusion: Challenger, MD-80

Canadair Regional Jet

Power: 2 × CF34 turbofans *Span:* 21.44m *Length:* 26.95m



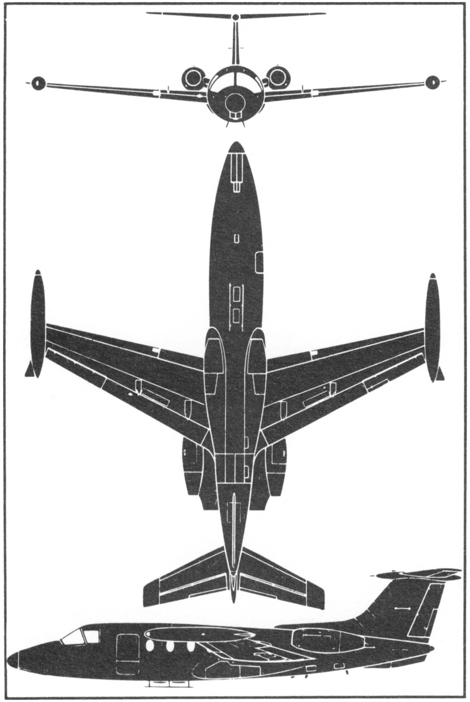


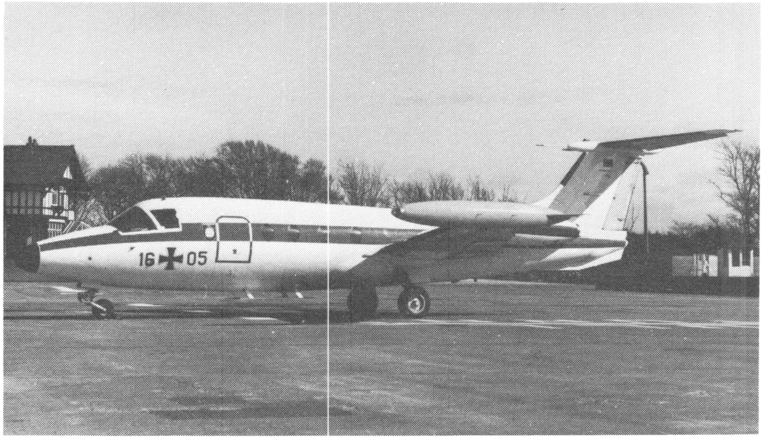
Evolved from the Challenger businesss aircraft, the Canadair Regional Jet, or RJ, is the first of a new generation of small airliners. Seating 50 passengers, four-abreast, the Regional Jet cruises at 851km/h and has a range of 1,561km. First flown in May 1991, the aircraft has attracted 35 firm orders, 36 options and 64 'letters of intent'. Canadair is part of the Bombardier Group and another Bombardier company, Shorts, is building the Regional Jet main fuselage sections in Belfast. *Country of origin:* Canada.

MBB HFB 320 Hansa

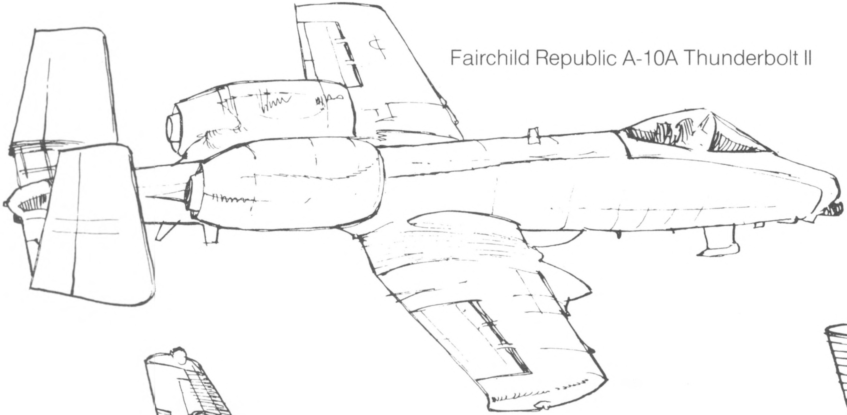
Confusion: Learjet 35/36

Power: 2 × CJ610 turbojets *Span:* 14.49m *Length:* 16.61m

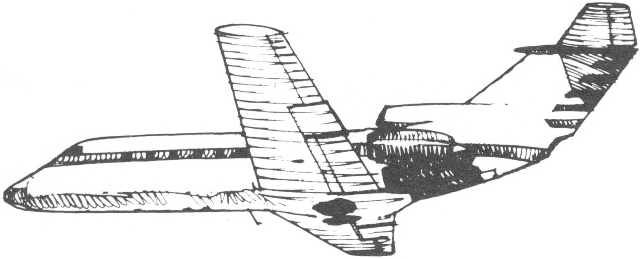




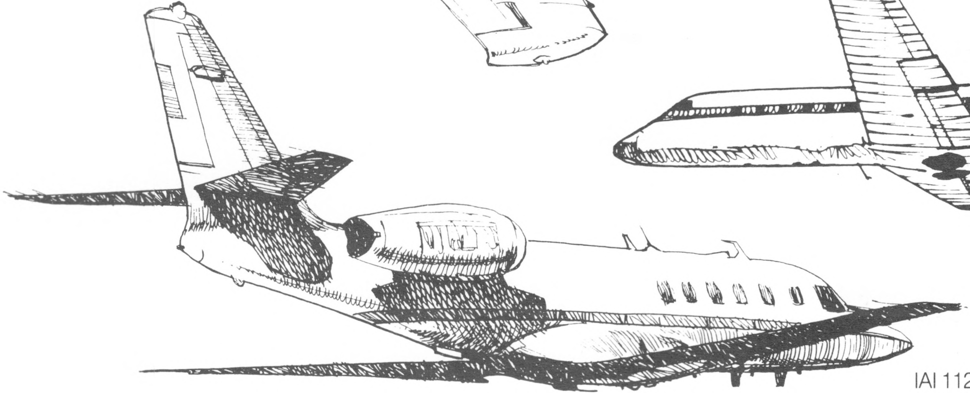
Remarkable in having forward-swept wings, the HFB 320 Hansa business jet and light transport first flew in 1964. In executive form the Hansa carries seven/nine passengers and two crew, while up to 12 passengers can be accommodated in a high-density layout. A total of 50 Hansas were built, including eight for the German Air Force. Production of the type is complete. The Hansa cruises at 825km/h and has a range of 2,370km. Maximum payload of the passenger version is 1,775kg. *Country of origin:* Germany.



Fairchild Republic A-10A Thunderbolt II



Yakovlev Yak-40 'Codling'

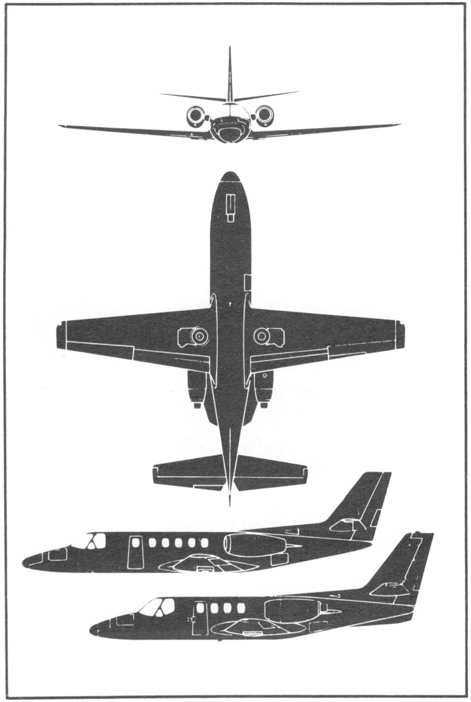


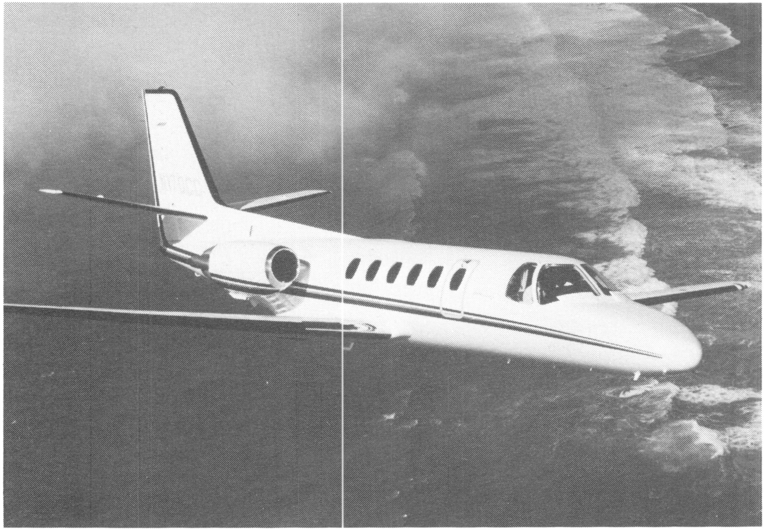
IAI 1125 Astra

Cessna Citation I/II

Confusion: PD-808, Westwind

Power: 2 × JT15D turbofans *Span:* (Citation I): 14.35m *Length:* (Citation II): 14.39m



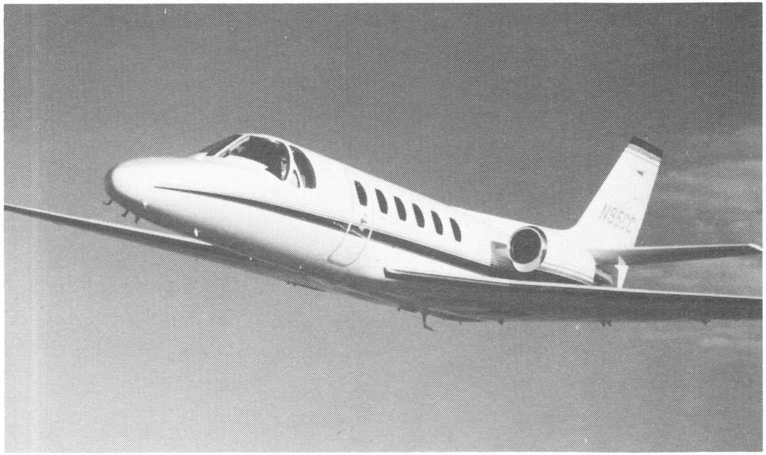


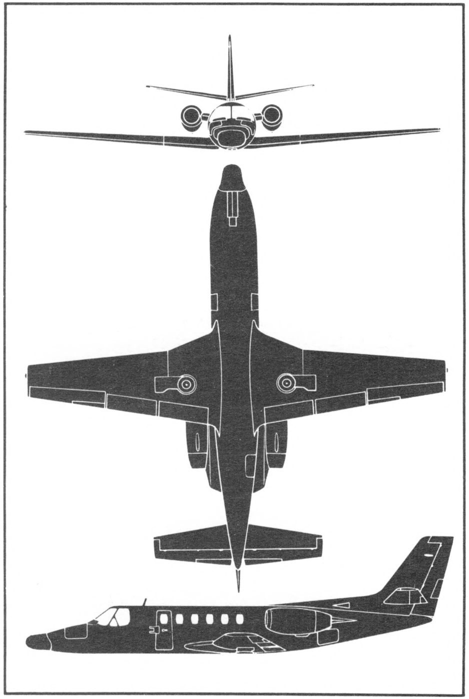
Initially known as the Fanjet 500, the Cessna Citation seven/eight-seat twin-turbofan executive transport first flew in 1969. The original production version, the Citation 500, was superseded by the Citation I with longer-span wings and uprated turbofans. The Citation II has increased span, a longer fuselage and accommodation for up to 10 passengers. *Country of origin:* USA. *Main silhouette:* Citation 500; *upper side view:* Citation II. *Picture:* Citation II.

Confusion: Citation 1/11

Cessna Citation S/11

Power: 2 × JT15D turbofans *Span:* 15.9m *Length:* 14.39m



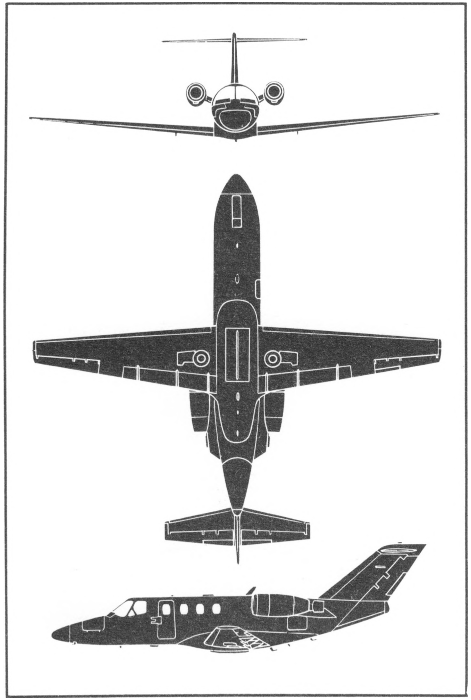


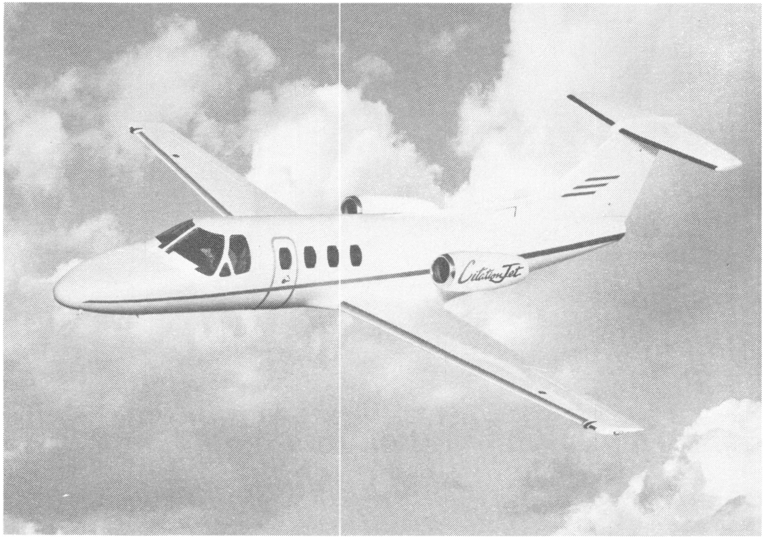
The Citation 11 was replaced on the production line in 1984 by the six/eight seat S/11 version having a revised wing with extended inboard leading-edges and modified engine cowlings. The full production S/11 flew in February 1984. Cruising speed is 746km/h. The US Navy ordered 15 Citation S/11s as trainers under the designation T-47A; these have shorter, 14.18m span wings. The Citation V is a recent development with a fuselage 0.6m longer and with an extra window on each side. First customer deliveries were made early in 1989. Many hundreds of Citations, in all variants, have been built. *Country of origin:* USA.

Cessna Citation Jet

Confusion: Citation S/11

Power: 2 × FJ44 turbofans *Span:* 14.26m *Length:* 12.98m



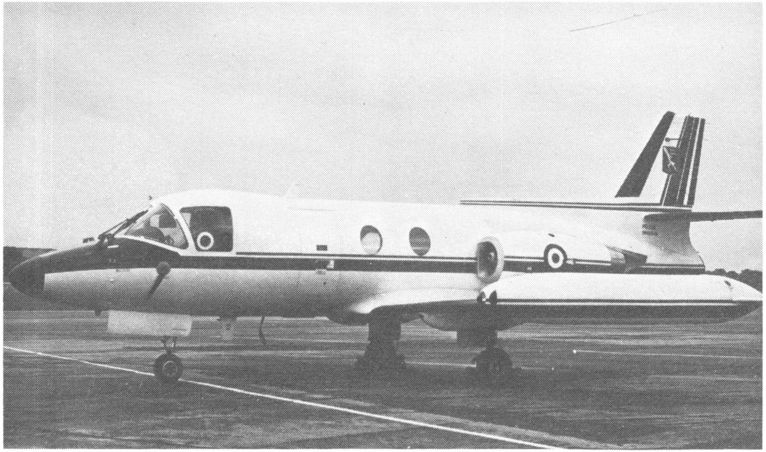


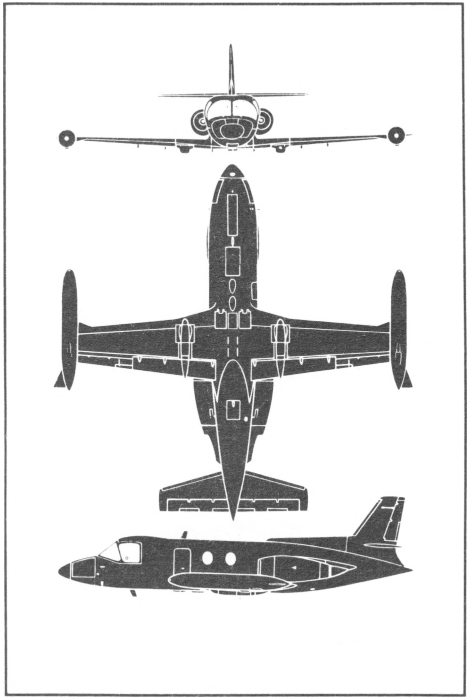
First flown in April 1991, the Cessna model 525 Citation Jet is a six-seat business jet, deliveries of which are to commence at the end of 1992. Cessna has booked 100 orders for the type and forecasts sales of over 1000 in a 10 year period. Maximum cruising speed is 704km/h and range with maximum payload 1,992km. *Country of origin:* USA.

Confusion: Learjet 23/24/25

Piaggio PD-808

Power: 2 × Viper turbojets *Span:* 11.43m *Length:* 12.85m



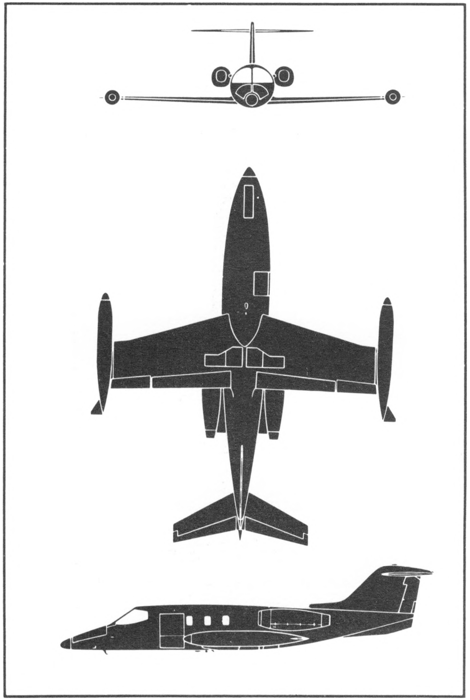


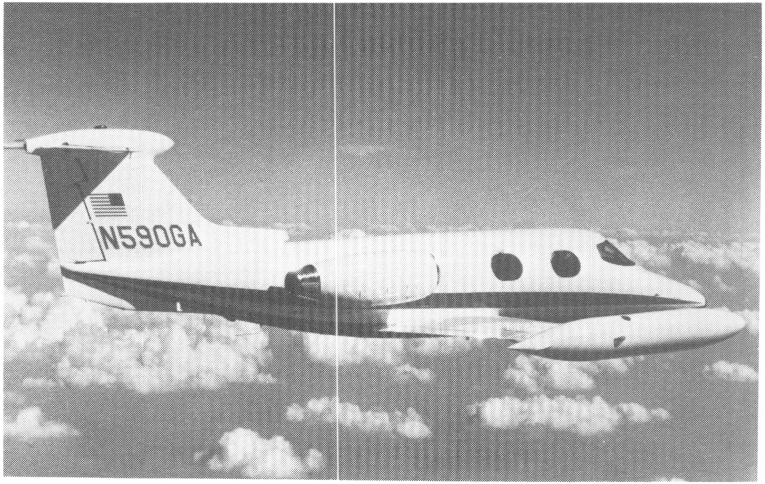
A light jet utility/executive aircraft, the PD-808 was first flown in 1964 and ordered by the Italian Defence Ministry. A maximum of 10 passengers can be seated in the cabin, cruising speed is 722km/h and range is 2,045km. The Italian Air Force uses the PD-808 as a transport, VIP aircraft, navigation trainer and ECM aircraft. All versions carry one or two flight crew; the VIP transport carries six passengers and the electronic countermeasures version is operated by two pilots and three equipment specialists. The designation PD recalls the two companies which launched the project, Piaggio and Douglas. *Country of origin:* Italy.

Learjet 23/24/25

Confusion: Learjet 35/36

Power: 2 × CJ610 turbojets *Span:* 10.84m *Length:* (25D): 14.5m



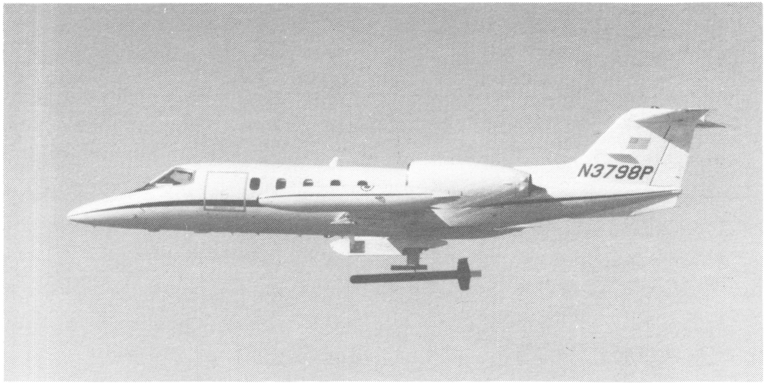


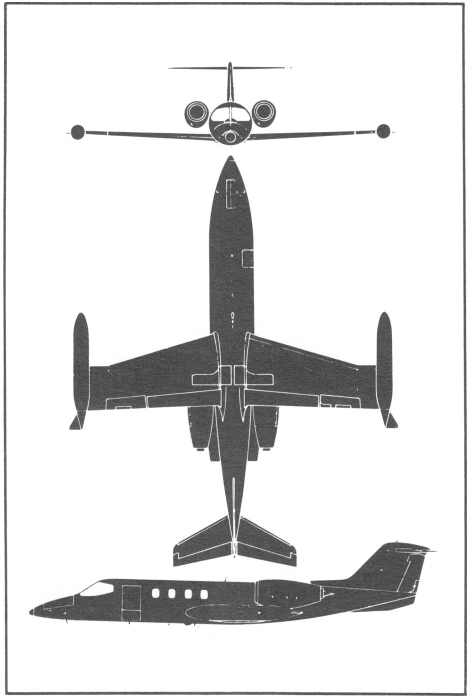
Flown for the first time in 1963, the Learjet series of executive transports has been steadily developed and built in large numbers. With six seats and two crew, the Learjet 24 cruises at 774km/h. The tailplane/fin bullet of earlier versions was deleted from the Model 24. The Learjet 25 is 1.27m longer and seats two extra passengers. Another version is the 25D. A belly camera installation has been fitted to some aircraft. *Country of origin:* USA. *Silhouette:* Learjet 24D. *Picture:* Learjet 24.

Confusion: Learjet 23/24/25

Learjet 35/36

Power: 2 × TFE731 turbofans *Span:* 12m *Length:* 14.82m



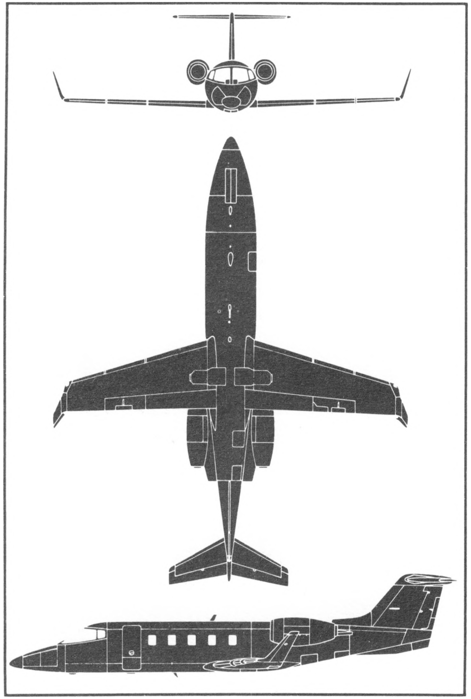


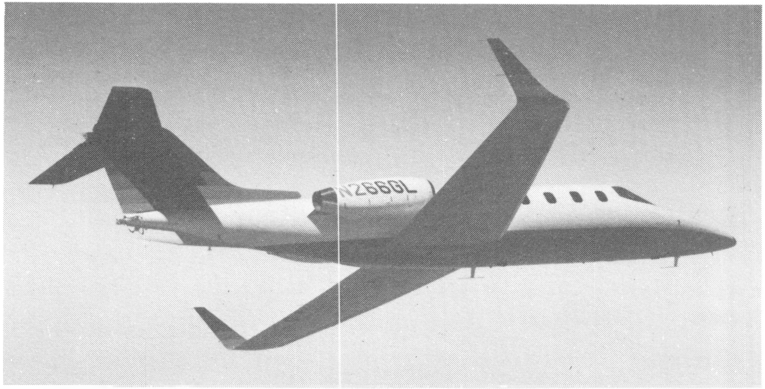
A new series of enlarged Learjet executive aircraft was introduced in 1973. Both wingspan and length were increased, there are five starboard windows instead of four and the engine nacelles are more bulbous. The wingtips have short rectangular extensions on which the fuel tanks are mounted. Like the Learjet 25, the 35/36 seats eight passengers. Currently in production are the 35A and six-seat, longer range 36A. A variety of military and paramilitary versions are offered and 80 aircraft are in service with the USAF, designated C-21A. Special mission versions operating in 20 countries are designated EC-35A (electronic warfare and simulation), PC-35A (maritime patrol), RC-35A (reconnaissance), VC-35A (utility version) and U-36A (modified for Japanese Maritime Self-Defence Force). *Country of origin:* USA. *Silhouette:* Learjet 35. *Picture:* Learjet 35A (with towed target underneath).

Learjet 28/55

Confusion: Learjet 35/36, Citation

Power: 2 × TFE731 or PW305 turbofans *Span:* (55): 13.35m *Length:* (55): 14.53m



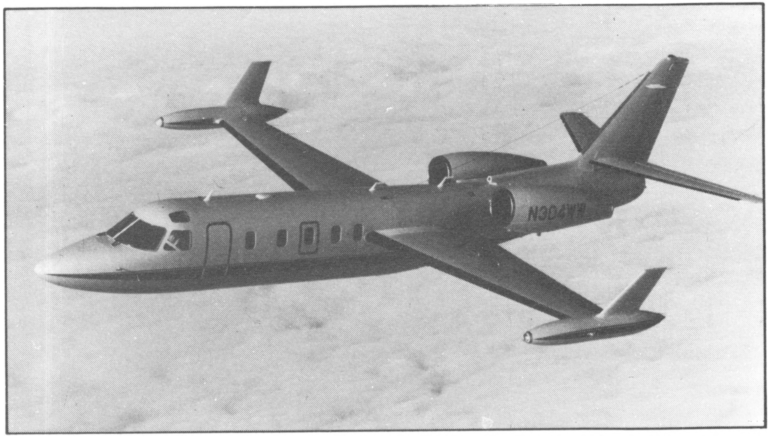


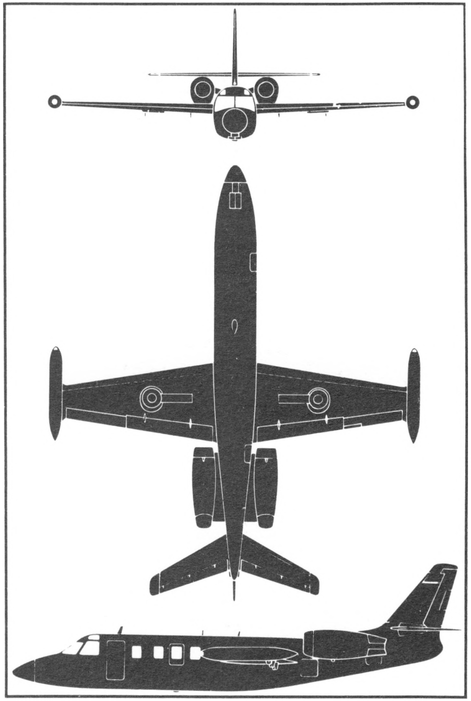
The Learjet 28, an improved version of the Learjet 25, has a redesigned wing with vertical winglets at the tips. The 29 Longhorn is externally similar but with increased fuel capacity. Learjet married a new wide-body 10-passenger fuselage to the wing of the 28/29 to produce the 55. The first 55 flew in April 1979 and the first production aircraft in August 1980. Variants include the 55C, 55C/ER with extended range and 55CLR (long range). Extended range versions are the 55ER and LR. Using the fuselage and power plant of the Learjet 35A and 36A combined with similar wings to the Learjet 28/29 produced Learjet 31 which has enlarged rear fuselage strakes. Latest version is the PW305 powered Learjet 60 seating six to nine passengers. *Country of origin:* USA. *Silhouette:* 55 Longhorn. *Picture:* 28 Longhorn.

Confusion: Learjet 23/24/25

IAI Westwind

Power: 2 × TFE731 turbofans *Span:* 13.65m *Length:* 15.93m



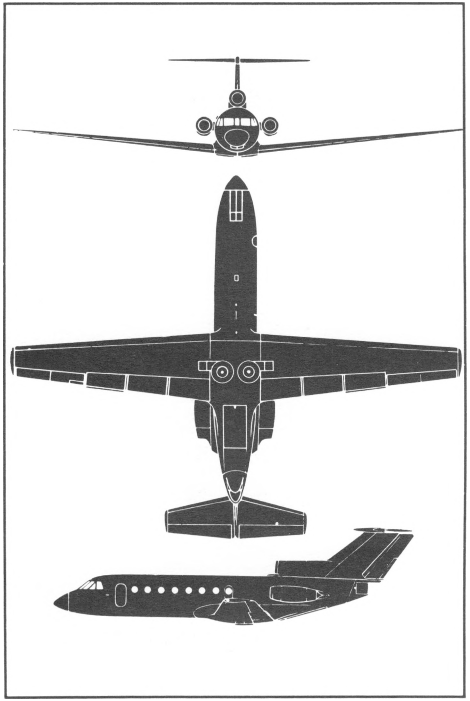


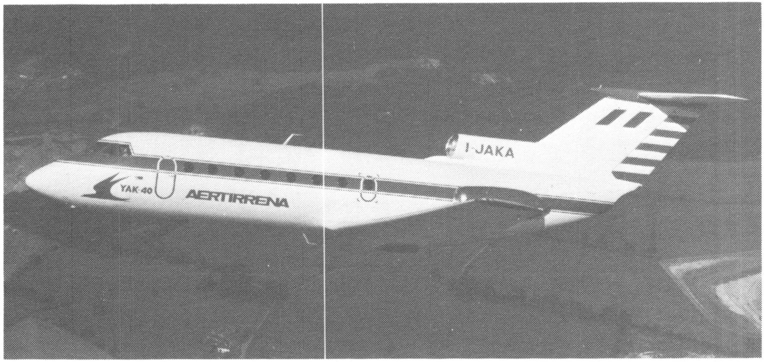
Originally powered by two CJ610 turbojets and known as the IAI 1123, the Westwind executive aircraft (1124) has two Garrett-AiResearch turbofans. Produced by Israel Aircraft Industries, the Westwind carries two pilots and up to 10 passengers. Economical cruising speed is 741km/h and with seven passengers range is over 4,490km. A naval tactical support and coastguard version is available, designated 1124 Sea Scan. A longer range development is the Westwind 2 with improved wing and winglets on the tip tanks. After the production of 250 Westwinds, the line was closed. *Country of origin:* Israel. *Silhouette:* IAI 1124. *Picture:* Westwind 2.

Yakovlev Yak-40 ‘Codling’

Confusion: Citation

Power: 3 × Ivchenko turbofans *Span:* 25m *Length:* 20.36m

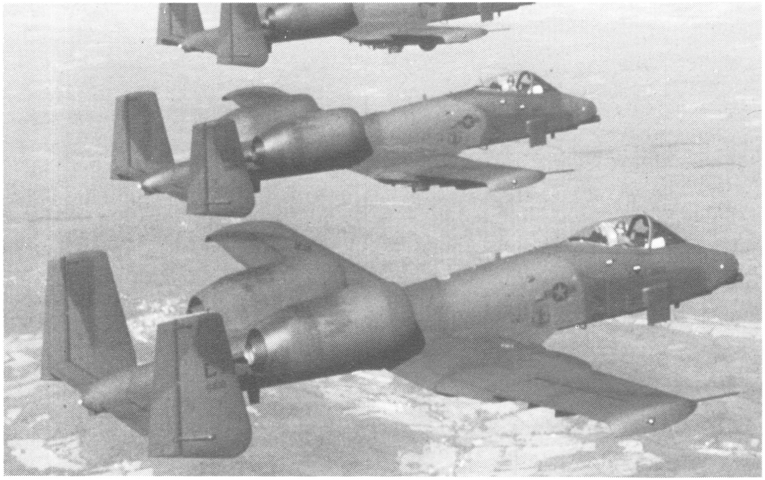


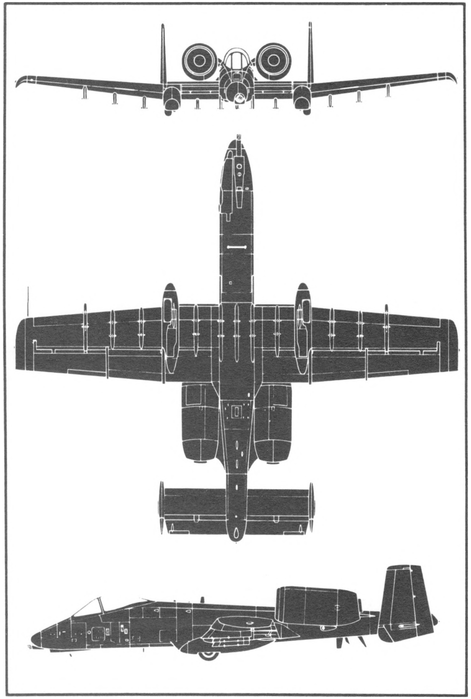


Several hundred examples of the Yak-40, code-named ‘Codling’, have been built and the type is the most widely used aircraft on CIS internal short-haul services. First flown in 1966, ‘Codling’ went into service with Aeroflot in 1968 and since then many have been exported. Seating up to 32 passengers, ‘Codling’ cruises at 470km/h and has a maximum range of 2,000km. A cargo version with a large door on the port side has been built. Most of the many Yak-40s built so far are in service with Aeroflot, some as air ambulances. Examples have been delivered to Italy and others are in service in Afghanistan, Bulgaria, Czechoslovakia, France, Germany, Poland and Yugoslavia. Military users include the Soviet and Polish Air Forces. *Country of origin:* Russia.

Fairchild Republic A-10A Thunderbolt II

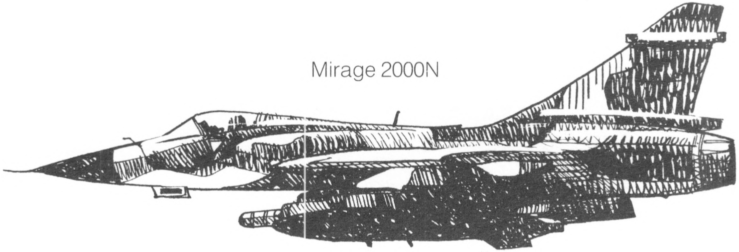
Power: 2 × TF34 turbofans *Span:* 17.53m *Length:* 16.26m



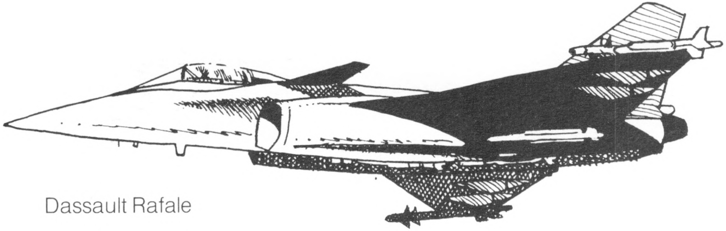


The single-seat A-10A Thunderbolt II is heavily armoured and carries massive armament for ground attack. With a combat speed of 712km/h and a radius of action of 1,000km, the Thunderbolt can carry 5,450kg of weapons externally. In addition to bombs, rockets and guided missiles, the Thunderbolt II has a seven-barrel 30mm gun mounted in the nose. A total of 825 Thunderbolts have been built and the type is in service in the USA and Europe. A combat-readiness trainer version is designated A-10B. *Country of origin:* USA. *Silhouette and picture:* A-10A.

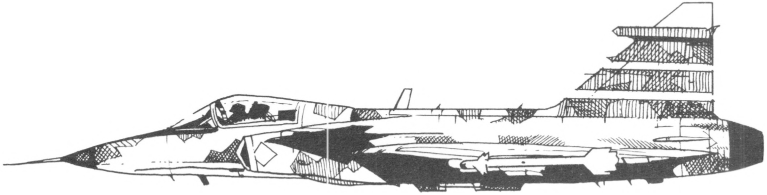
Jet, delta wing



Mirage 2000N



Dassault Rafale

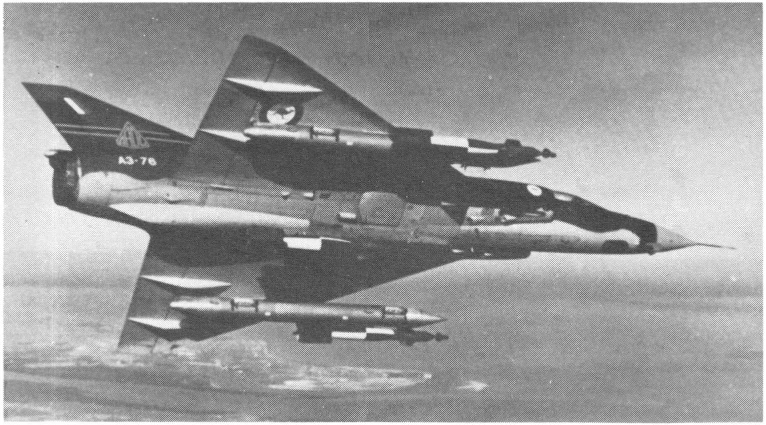


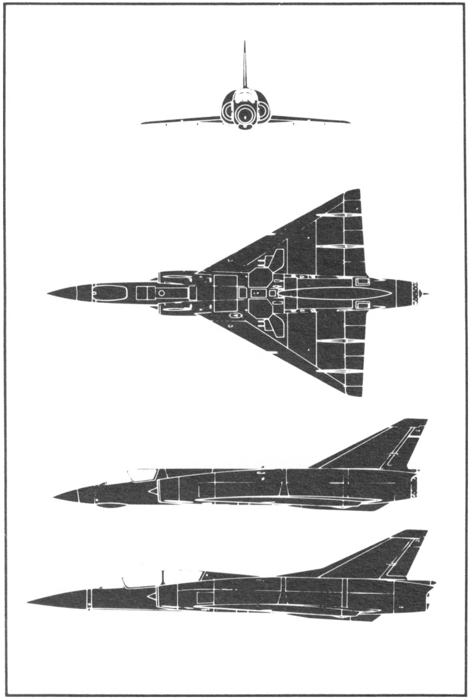
SAAB Gripen

Dassault-Breguet Mirage III

Confusion: Mirage 5, Mirage IV, Mirage 2000, Kfir

Power: 1 × Atar reheated turbojet *Span:* 8.22m *Length:* (IIIE): 15.03m



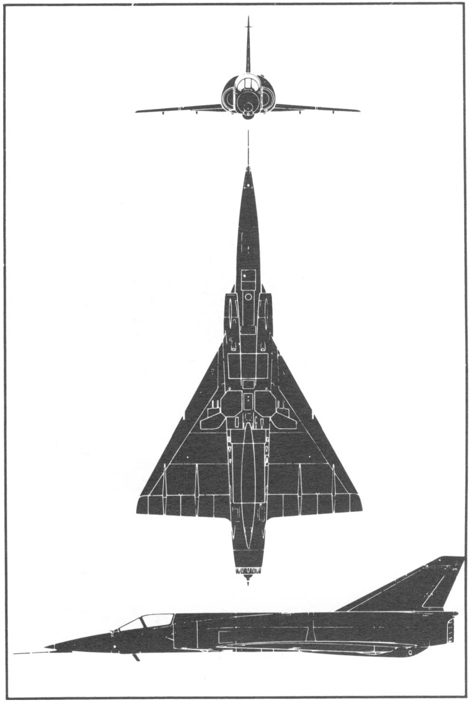


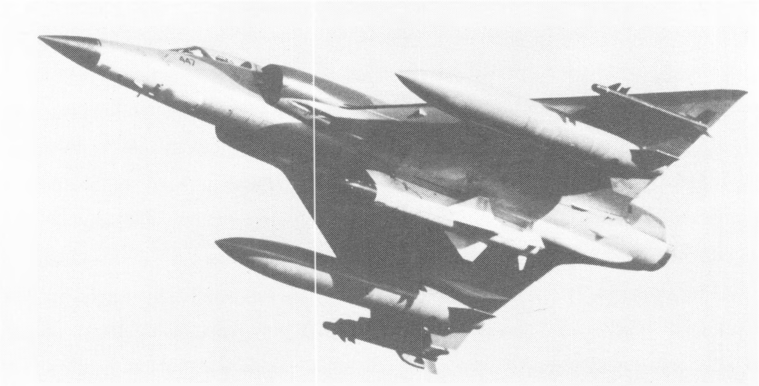
One of the most successful single-seat fighter/ground-attack aircraft produced in Europe, the Mirage III has been sold to many countries. First flown in 1956, it has been built in several versions: IIIC interceptor, IIIE ground attack, IIIB and IIID two-seat trainers and IIIR reconnaissance aircraft. Basic armament consists of two 30mm cannon in the fuselage. Bombs, rockets, guided missiles and long-range tanks can be carried on centreline and underwing pylons. The aircraft is capable of Mach 2.2 and radius of action for ground attack is 1,200km. *Country of origin:* France. *Main silhouette:* Mirage IIIE; *lower side view:* Mirage IIID. *Picture:* Mirage IIIO.

Dassault-Breguet Mirage 5/50

Confusion: Mirage III, Mirage 2000, Kfir

Power: 1 × Atar 9C turbojet *Span:* 8.22m *Length:* 15.55m

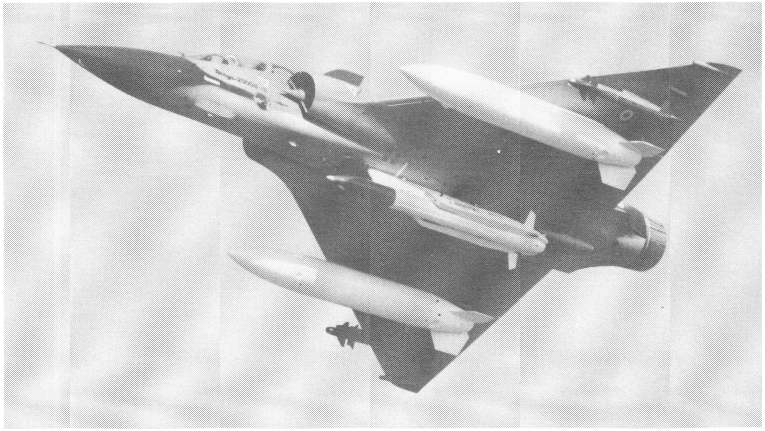


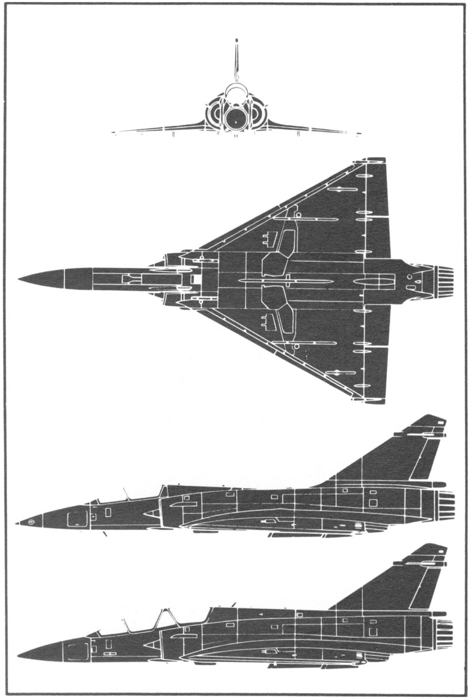


The ground-attack version of the Mirage III is designated Mirage 5. Over 1,400 III/5s were built. The Mirage 5 has simplified avionics and a longer nose than the Mirage III. The prototype was first flown in May 1967. Armament combinations include cannon, bombs and missiles. Maximum speed of the Mirage 5 is 2,350km/h at 12,000m. Service ceiling is 17,000m. Mirage 5 designations indicate the customer country: 5SDE (*Arabie SaouDitE*—Saudi Arabia) and 5AD (Abu Dhabi), for example. The two-seat trainer has the letter 'D' after the country designation. The Mirage 50 has uprated Atar 9K50 engine and new electronics systems. Dassault is offering update programmes for III/5/50 including avionics and in-flight refuelling. *Country of origin:* France. *Silhouette:* Mirage 5. *Picture:* Mirage 50.

Dassault-Breguet Mirage 2000

Power: 1 × M53 reheated turbofan *Span:* 9m *Length:* 15.33m



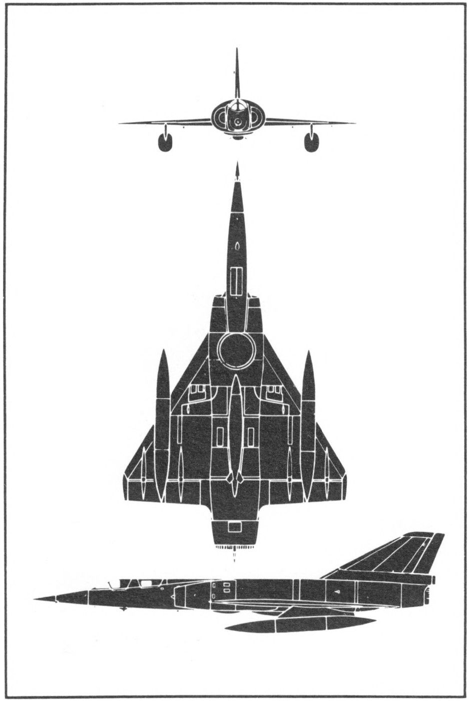


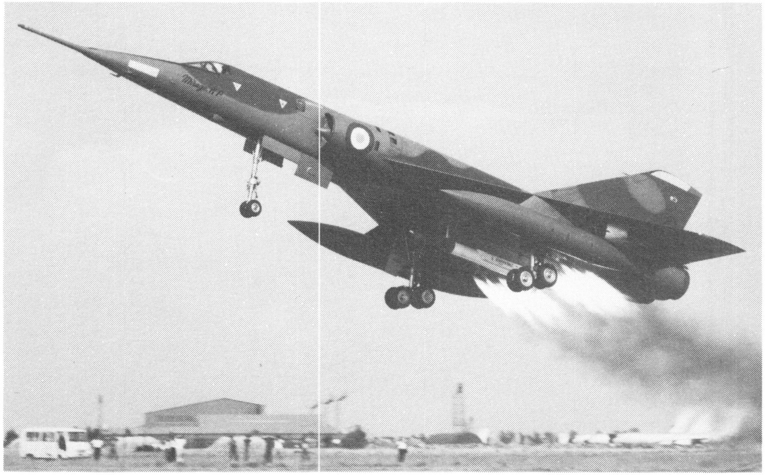
Although bearing a superficial resemblance to the Mirage III/5, the Mirage 2000 is a completely new aircraft which provides the French Air Force with a very advanced Mach 2+ interception capability. The controls are electrically signalled 'fly-by-wire', with computer control. In its primary role the single-seat Mirage 2000C will carry Super Matra 530 and R550 Magic air-to-air missiles and external fuel tanks. A variety of weapons can be carried for ground attack. A two-seat trainer variant is designated 2000B. A two-seat 'Penetration' version known as Mirage 2000N, with a stand-off nuclear missile, is in service with the FAF. *Country of origin:* France. *Main silhouette:* Mirage 2000; *lower side view:* Mirage 2000N. *Picture:* Mirage 2000N.

Dassault-Breguet Mirage IVA/IVP

Confusion: Mirage III/5, Mirage 2000, Kfir

Power: 2 × Atar reheated turbojets *Span:* 11.85m *Length:* 23.5m



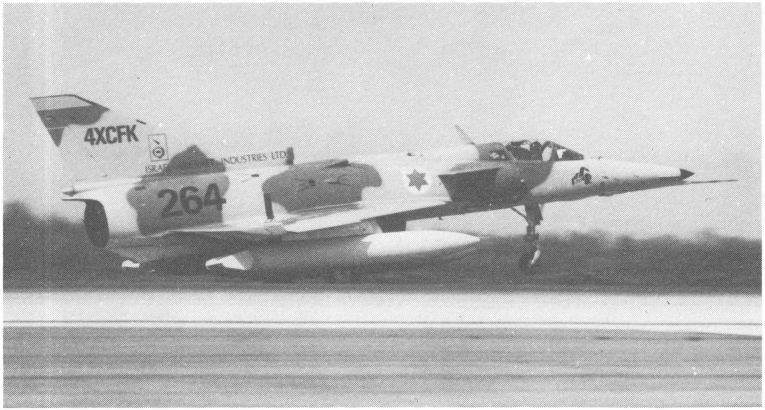


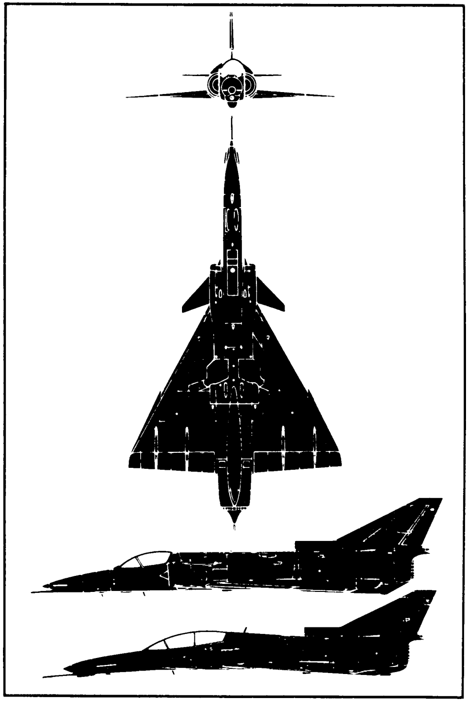
The Mirage IVA was designed in the 1950s as France's nuclear deterrent bomber. Its shape owes much to the Mirage III but it is much larger. Seating two in tandem, the Mirage IVA first flew in 1959 and 62 had been completed when production ended in March 1968. There are 30 Mirage IVs still in use. Of these, 18 have been modified as the Mirage IVP. The IVP carries the ASMP tactical nuclear stand-off missile in place of the free-fall nuclear bomb recessed in the fuselage underside. *Country of origin:* France. *Silhouette:* Mirage IVA. *Picture:* Mirage IVP.

Confusion: Mirage III, Mirage 5, Mirage 2000, Viggen

IAI Kfir

Power: 1 × J79 reheated turbojet *Span:* 8.22m *Length:* 16.35m



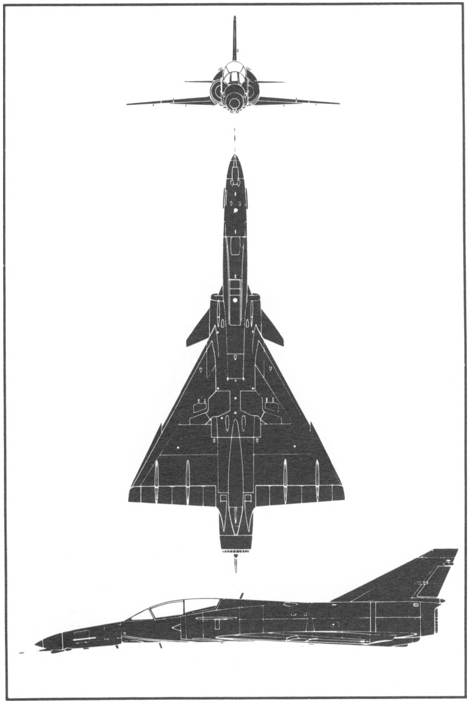


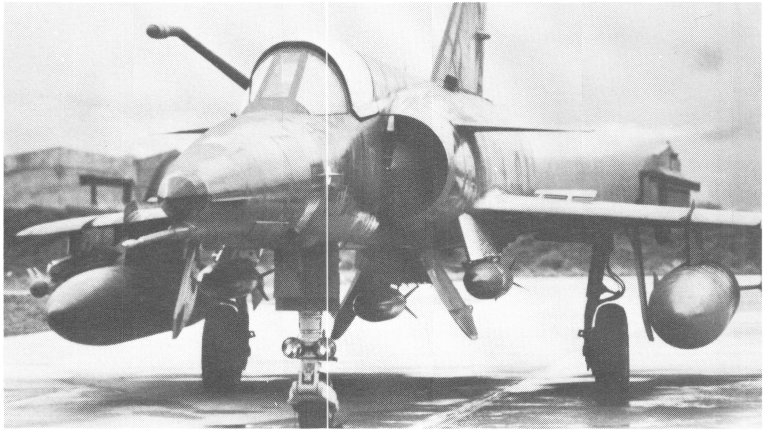
An extensively redesigned Mirage 5 built in Israel and powered by a General Electric J79 engine, the Kfir first went into service with the Israeli Air Force in 1975 as the Kfir-Cl. Modified versions the C2 and C7, have additional small winglets, or canards, just behind the air intakes and an extended wing leading-edge. A dual-role interceptor and ground-attack aircraft, the Kfir has two fuselage-mounted 30mm cannon and seven hard points for air-to-air and air-to-ground missiles, bombs or drop tanks. The Kfir has a top speed of over 2,335km/h. Two-seat trainer derivatives are designated Kfir-TC2/TC7. Last production version was the Kfir-C7 with improved performance. Altogether 212 Kfirs were built. *Country of origin:* Israel. *Main silhouette:* Kfir-C2; *lower side view:* Kfir-TC2. *Picture:* Kfir-C2.

Atlas Cheetah

Confusion: Kfir, Mirage 111/5, Mirage 2000, Viggen

Power: 1 × Atar reheated turbojet *Span:* 8.22m *Length:* overall: 16.36m



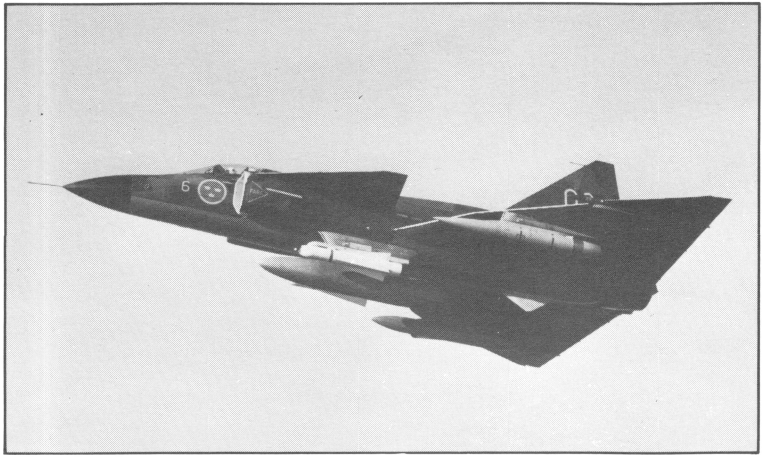


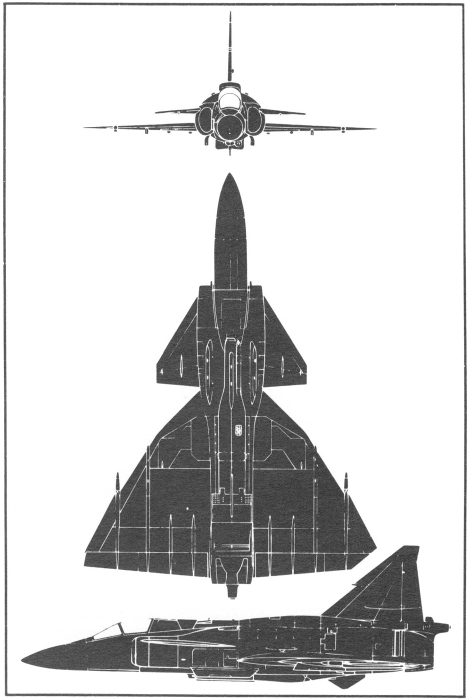
An advanced development of the Mirage 3, the South African Cheetah bears a close resemblance to the Israeli Kfir. Rebuilt from existing Mirage airframes, the Cheetah has a dog tooth leading-edge to the wing, canard surface extending from the intake cowling, small strakes on the nose and a revised nose shape. An unusual feature is the weapons pylons mounted at the wingroot/air intake duct junction. The Cheetah is built in single (EZ) and two-seat (DD) variants and carries two 30mm cannon, air-to-air and air-to-surface missiles and bombs. The internal systems have been completely changed and an in-flight refuelling probe is fitted. *Country of origin:* South Africa. *Picture:* Cheetah EZ.

Confusion: Kfir

Saab Viggen

Power: 1 × RM8A reheated turbofan *Span:* 10.6m *Length:* (including probe): 16.3m



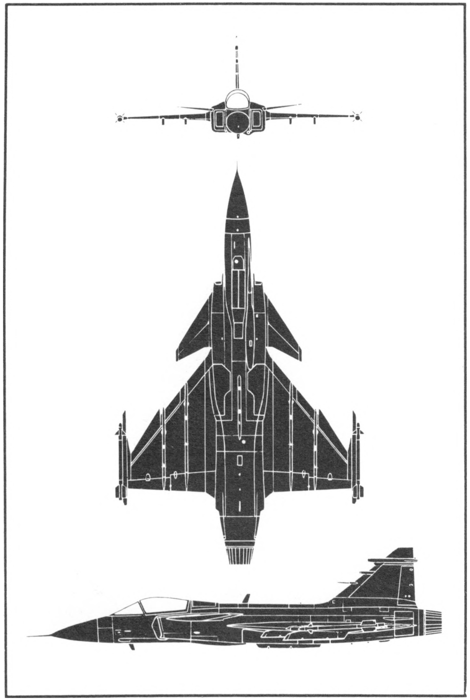


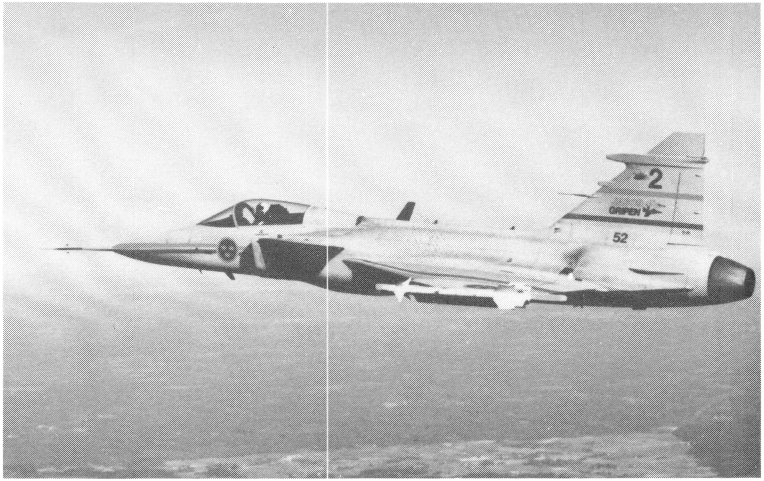
A high-performance Mach 2 multi-role aircraft, the Saab Viggen entered service with the Swedish Air Force in 1971. The Viggen (Thunderbolt) has a double-delta layout with the tailplane forward of the wing. The various versions are as follows: AJ37 all-weather attack; JA37 interceptor; SF37 reconnaissance; SH37 maritime reconnaissance; and SK37 two-seat operational trainer with raised rear cockpit. A wide variety of weapons can be carried on three underfuselage and four underwing pylons. The Viggen can operate from unprepared strips and roads. *Country of origin:* Sweden. *Silhouette:* JA37. *Picture:* AJ37.

Saab JAS 39 Gripen

Confusion: EFA, Rafale, Viggen

Power: 1 × RM12 reheated turbofan *Span:* 8m *Length:* 14.1m



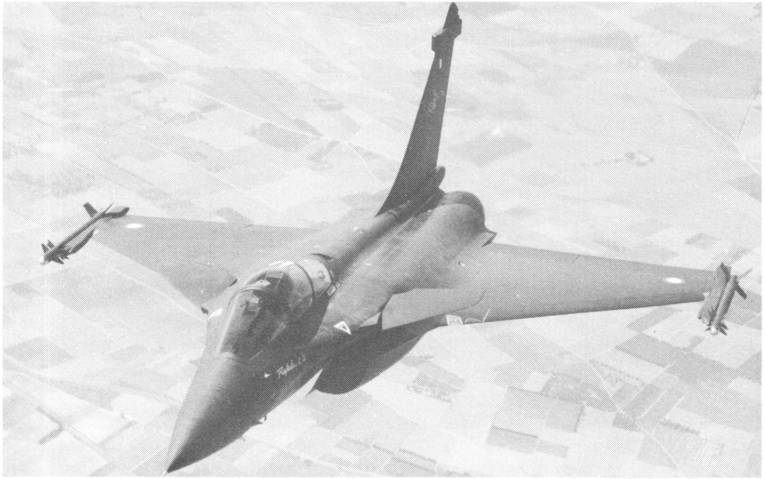


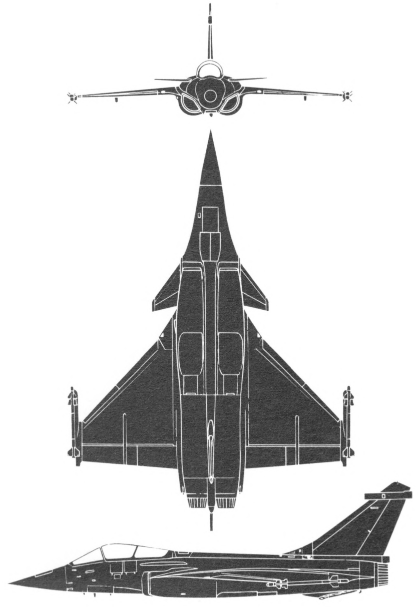
Designed as a Viggen/Draken replacement, the Gripen (Griffin) is an advanced single-seat multi-role combat aircraft which made its first flight in December 1988. The Gripen will be used for air defence, attack and reconnaissance. A 27mm cannon is mounted internally in the fuselage plus four stores stations under the wings, while air-to-air missiles are fitted on the wingtips. A variety of rockets and missiles can be carried. Over 300 Gripen aircraft are to be purchased by the Swedish Air Force. The type is supersonic at all altitudes. *Country of origin:* Sweden.

Confusion: EFA, Gripen

Dassault Rafale

Power: 2 × M88 reheated turbojets *Span:* 10.9m *Length:* 15.3m



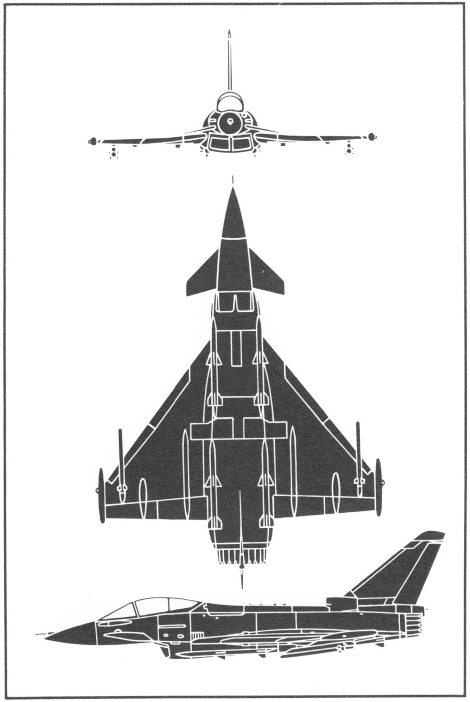


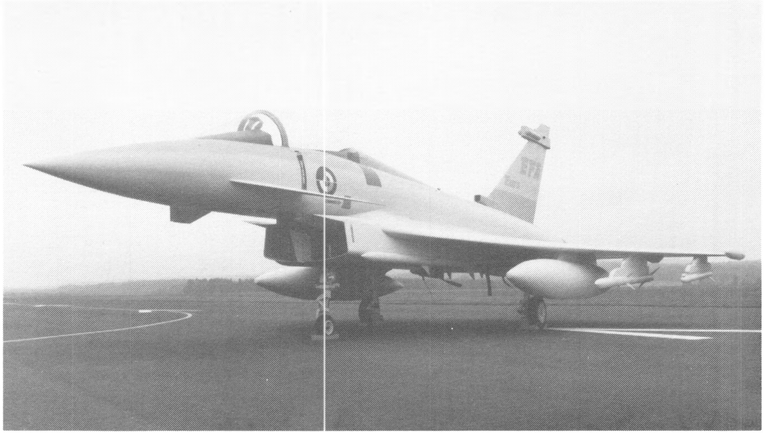
One of the new generation of single-seat, high-agility combat aircraft, the Dassault Rafale is to be produced in two versions, the Rafale C for the French Air Force (Rafale B, two-seat trainer) and the Rafale M for carrierborne operations with the French Navy. Basic requirement is for 250 for the French Air Force and 86 for the Navy. Capable of Mach 2 at altitude, the Rafale will have a low-level combat radius of action of just over 1,000km. A variety of weapons can be carried, including air-to-air and air-to-surface missiles, bombs, weapon dispensers or a stand-off nuclear weapon. A 30mm cannon is fitted as standard. Production deliveries are due to commence in 1996. *Country of origin:* France.

Eurofighter EFA

Confusion: Rafale, Gripen

Power: 2 × EJ200 reheated turbofans *Span:* 10.5m *Length:* 14.5m



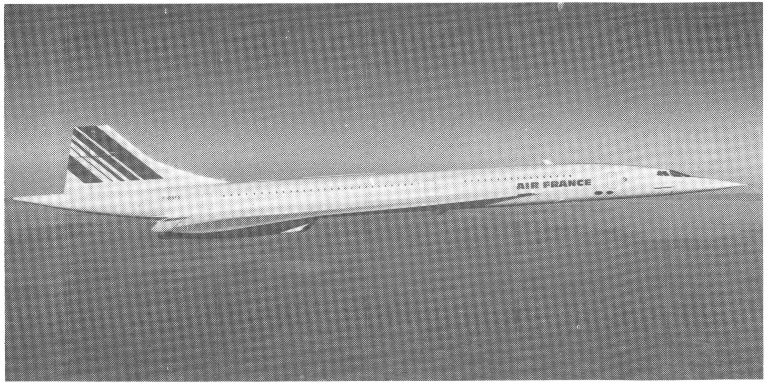


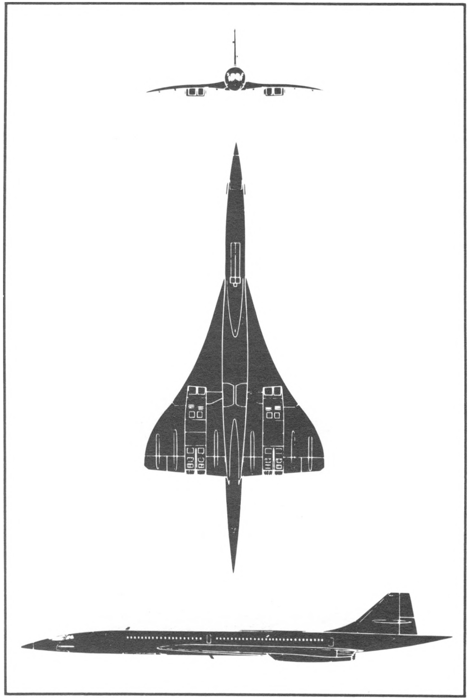
A new generation high-agility fighter/ground attack aircraft, the European Fighter Aircraft (EFA) is being jointly developed by four nations, UK, Germany, Italy and Spain. The original requirements totalled 700 aircraft but this figure is expected to be scaled down because of defence cuts. EFA is basically a single-seater but two-seaters will be provided for training and conversion. Capable of more than Mach 1.8 level speed, it will have a combat radius of 556km and will carry air-to-air missiles, air-to-surface weapons or drop tanks on 13 external stores stations. A 27mm cannon is fitted. First flight was scheduled for 1992. *Countries of origin:* UK/Germany/Italy/Spain. *Picture:* Mock-up.

Confusion: Viggen, Draken

Aerospatiale/BAe Concorde

Power: 4 × Olympus 593 reheated turbojets *Span:* 25.56m *Length:* 61.66m

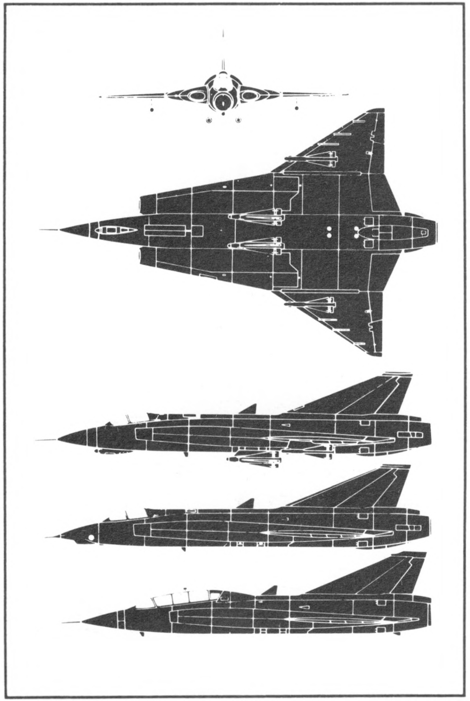


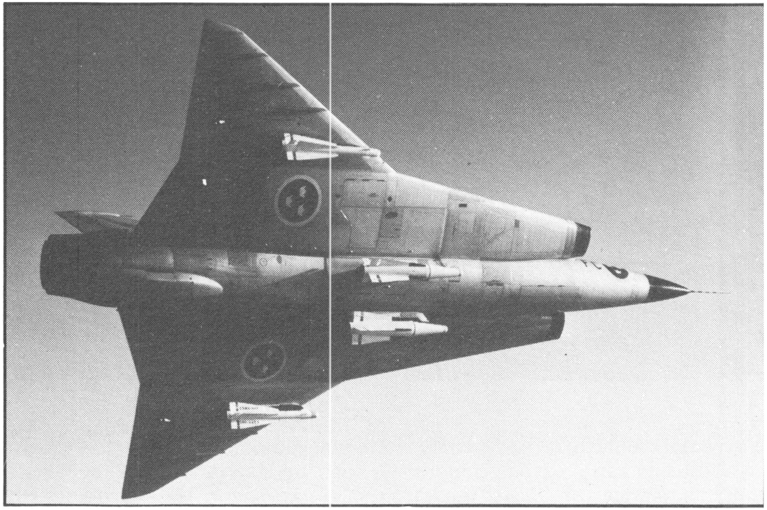


The world's only fully operational supersonic airliner, the Anglo-French Concorde can carry 128 passengers at a speed of Mach 2 for 6,300km. It first went into service with British Airways and Air France in 1976. A total of 18 Concordes were built, of which 14 entered service. The external layout is unusual: the engines are boxed under the wing in two pairs, while the wing is ogive-shaped in planform and steeply cambered at the leading-edge. Concorde's service ceiling is 18,300m, higher than that of any other airliner in service. Concorde commercial services were inaugurated on 21 January 1976, when the fifth and sixth production aircraft (Air France F-BVFA and British Airways G-BOAA) flew Paris-Dakar-Rio de Janeiro and London-Bahrain respectively. *Countries of origin:* France/UK.

Saab Draken *Confusion:* F-106

Power: 1 × RM6 reheated turbojet *Span:* 9.4m *Length:* 15.4m



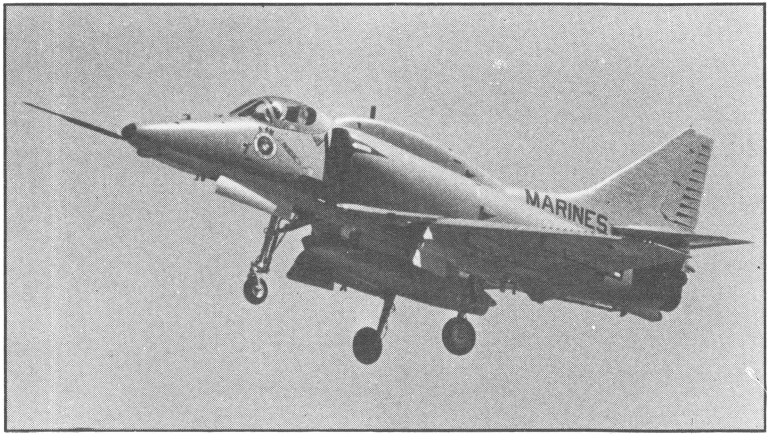


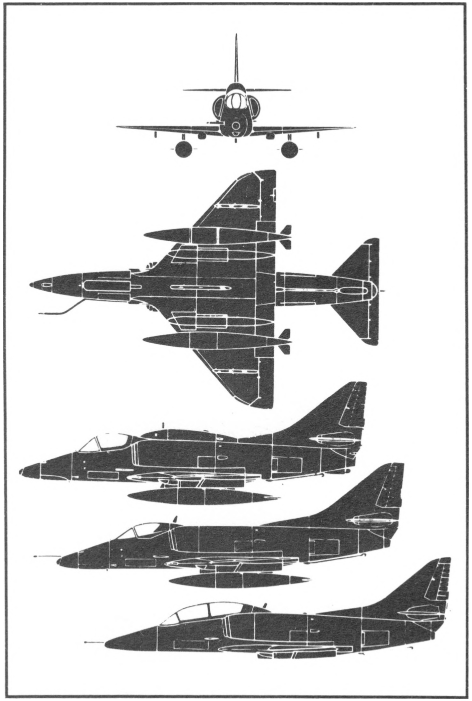
With its unusual double-delta wing and Mach 2 performance, the Saab Draken fighter first flew in 1955. It remained in production until 1976 and is in service with Sweden, Denmark, Austria and Finland. Various versions have been produced, including the J35A, B, D and F, plus the SK35C two-seat trainer and S35E reconnaissance aircraft. Some 66 J35Fs have been updated with the designation J35J. *Country of origin:* Sweden. *Main silhouette:* J35F; *middle side view:* S35E; *bottom side view:* SK35C. *Picture:* J35F.

Confusion: F-16

McDonnell Douglas A-4 Skyhawk

Power: 1 × J65 or J52 turbojet *Span:* 8.38m *Length:* 12.27m



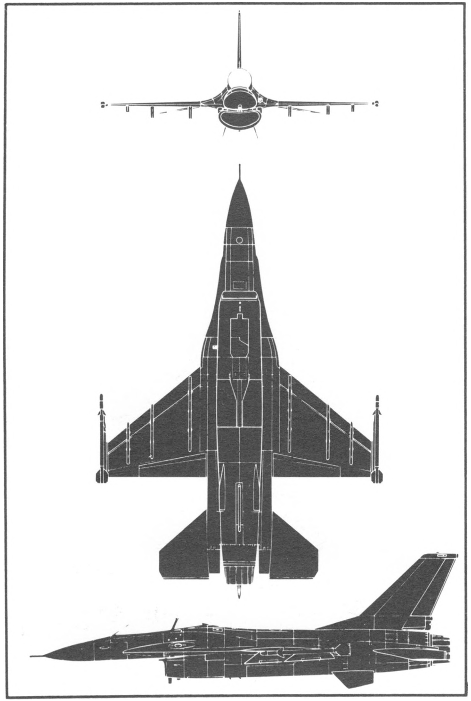


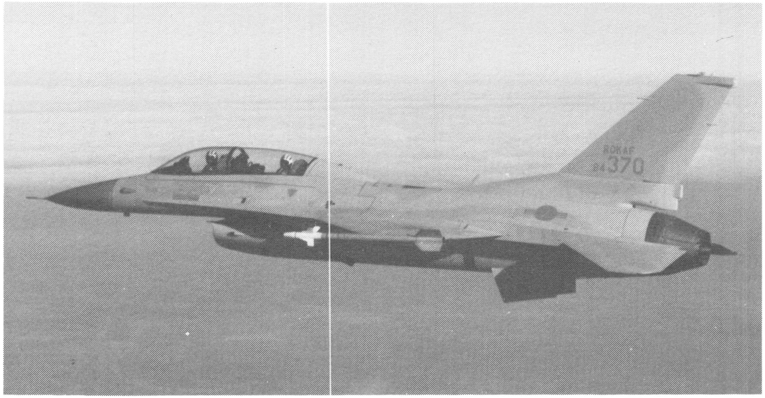
Designed as a carrierborne attack aircraft, the A-4 Skyhawk was nicknamed the ‘Bantam Bomber’. Although small, it can carry a very heavy weapon load plus two cannon. Variants have gone from A-4A through to -4S. The two-seat trainer is designated TA-4. All versions from the F model onwards carry a dorsal hump containing avionics equipment, while the -4M was the first sub-type to be known as Skyhawk II. The Skyhawk has a top speed of 1,078km/h and a range of 1,480km. Some 2,960 were built and production has been completed. Various update programmes are being carried out on A-4s. *Country of origin:* USA. *Main silhouette:* A-4M; *middle side view:* A-4E; *bottom side view:* TA-4F. *Picture:* A-4M.

General Dynamics F-16 Fighting Falcon

Confusion: Skyhawk, A-1 Ching Kuo

Power: 1 × F100 reheated turbojet *Span:* 9.45m *Length:* 14.52m



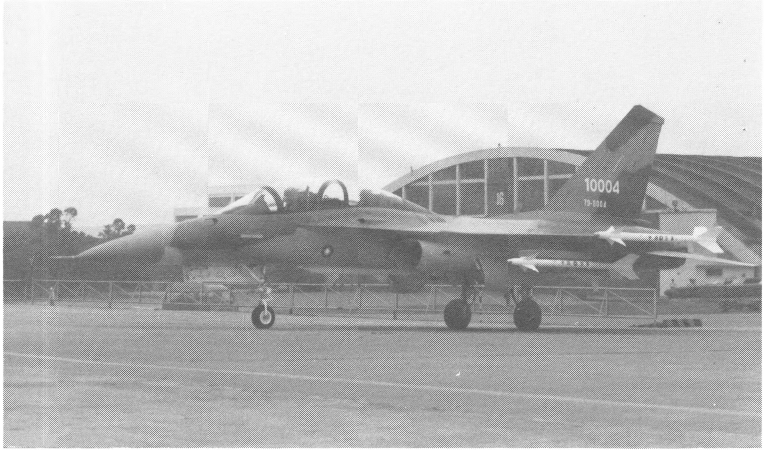


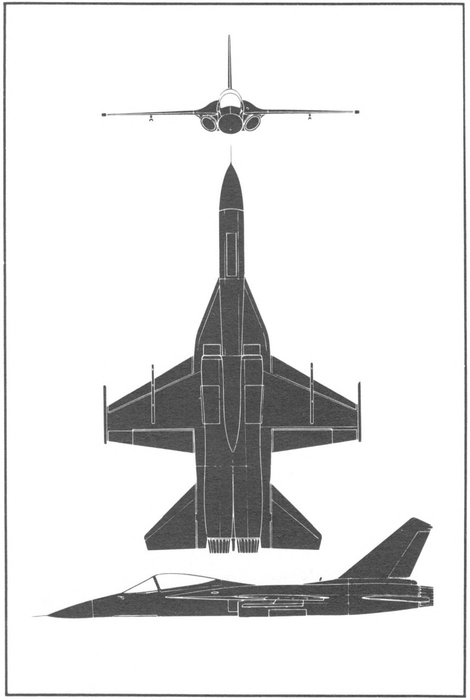
Highly manoeuvrable and capable of speeds in excess of Mach 2, the F-16 fighter is being built in the USA and in NATO countries and is in service with many air forces. A particular feature is the 'shark's mouth' intake. A multi-barrel 20mm cannon is mounted in the fuselage, together with weapons or tanks on four underwing pylons and air-to-air missiles on the wingtips. The production single-seater is known as the F-16A while the tandem two-seat trainer is designated F-16B. A larger tailplane was fitted from late 1981, and the F-16C and D with updated systems are in production. The US Navy uses the F-16N as a supersonic adversary aircraft. A recent upgrade is the Night Falcon. *Country of origin:* USA. *Silhouette:* F-16A. *Picture:* F-16D.

Confusion: F-16

AIDC A-1 Ching Kuo

Power: 2 × TFE 1042 reheated turbofans *Span:* approx 8.53m *Length:* approx 13.26m

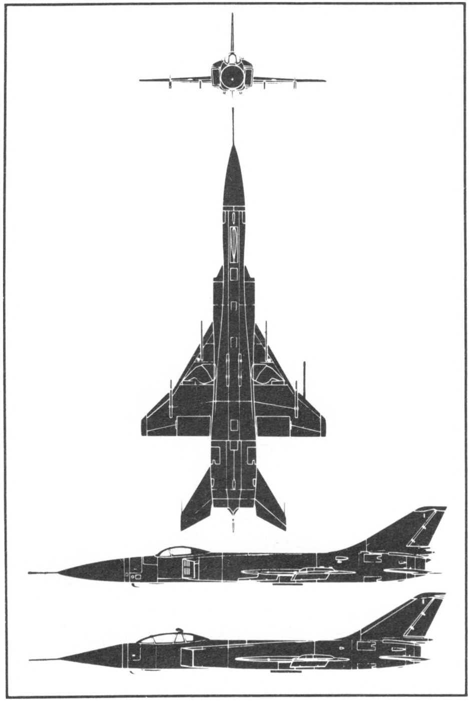


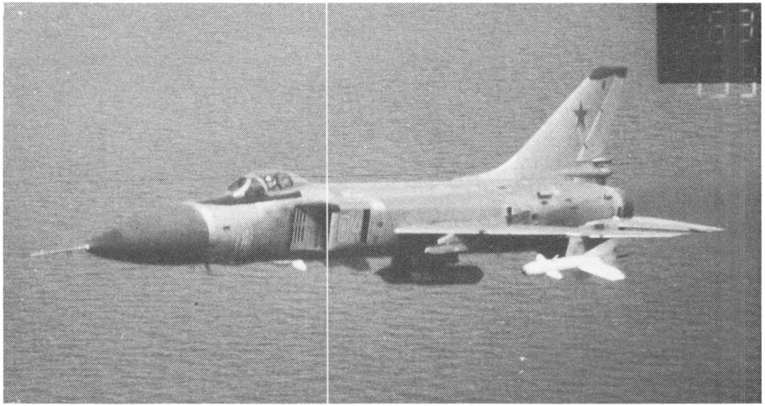


An air superiority fighter, the supersonic A-1 Ching Kuo, also known as the Indigenous Defensive Fighter (IDF), is intended to replace the F-104 in the Republic of China Air Force. A speed of over Mach 1 is reported but few other details are available. Four prototypes were built, the first flying in May 1989. Production is under way at the Aero Industry Development Centre to supply some 250 aircraft, of which over 40 will be two-seaters. A 20mm Vulcan cannon is fitted in the fuselage and there are six weapon attachment points (including wingtips). Sky Sword air-to-air missiles will be carried and air-to-surface missiles, rocket pods and bombs. *Country of origin:* Taiwan.

Sukhoi Su-15 'Flagon' *Confusion:* 'Fishpot'

Power: 2 × AL-21F reheated turbojets *Span:* (Flagon-A): 9.15m *Length:* (including probe): 20.25m



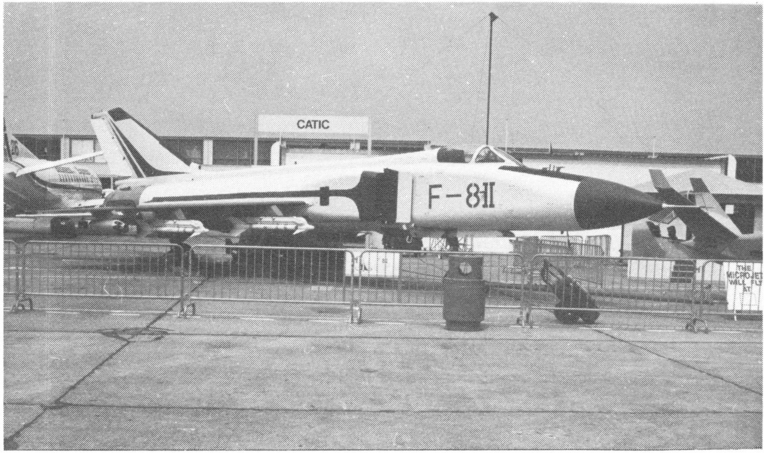


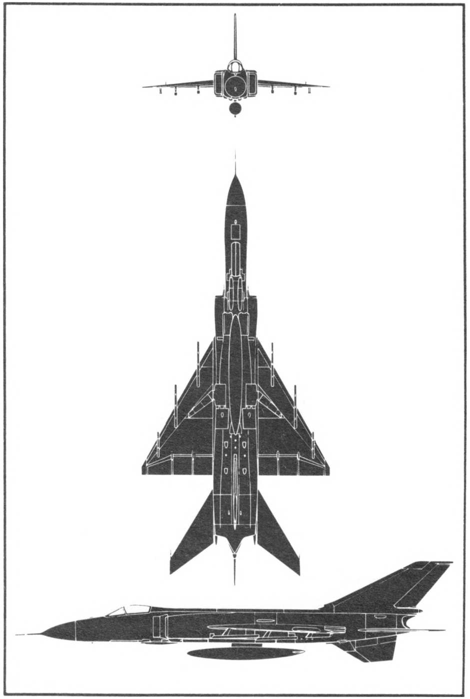
A Mach 2.5 twin-engined all-weather fighter, the Su-15, code-named 'Flagon', first flew in 1964. In its early form, 'Flagon A', the aircraft had the same wing shape as the 'Fishpot'. The latest variants, 'Flagon D', 'E' and 'F', have wing leading-edges with distinctive compound sweep. The 'Flagon' has a massive nose-mounted radome and large air-to-air missiles are carried on the outboard sections of the wing. Like 'Fishpot', 'Flagon' can carry twin auxiliary tanks under the fuselage. The two-seat version is known as 'Flagon C'. 'Flagon F' is distinguished from the 'D' and 'E' by its ogival, not conical, radome. 'Flagon' can carry a belly gun pack. 'Flagon G' is a two-seat trainer version of 'Flagon F'. *Country of origin:* Russia. *Main silhouette:* 'Flagon F'; *lower side view:* 'Flagon C'. *Picture:* 'Flagon F'.

Confusion: 'Flagon', 'Fishbed'

SAC J-8 II 'Finback'

Power: 2 × WP-13A reheated turbojets *Span:* 9.34m *Length:* 21.59m



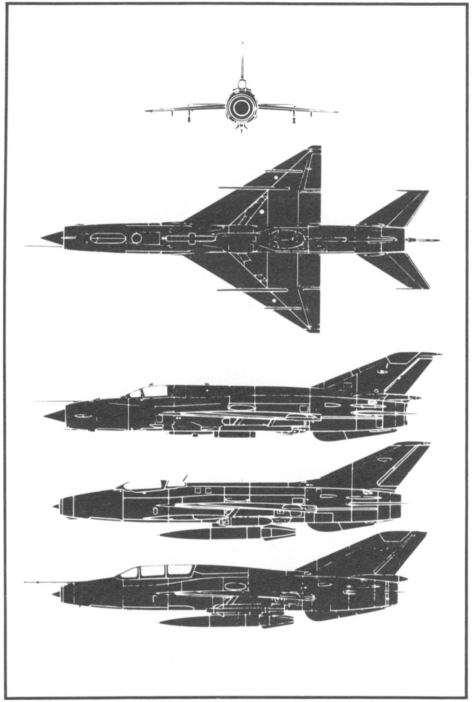


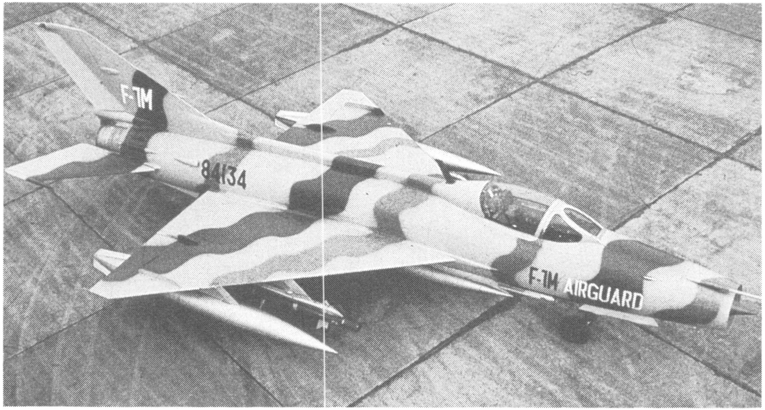
A single-seat twin-engined air superiority fighter, the J-8 II, NATO code-named 'Finback', has a design history stretching back to the 1960s. J-8 and J-8 I were code-named 'Finback-A' while J-8 II is called 'Finback-B'. Export variants may carry alternative avionics. Capable of a maximum level speed of 1300km/h and a combat radius of 800km, the J-8 II has a 23mm twin-barrel cannon under the fuselage and a variety of underwing stores, including PL-2B and PL-7 air-to-air missiles. *Country of origin:* China.

Mikoyan MiG-21 'Fishbed'

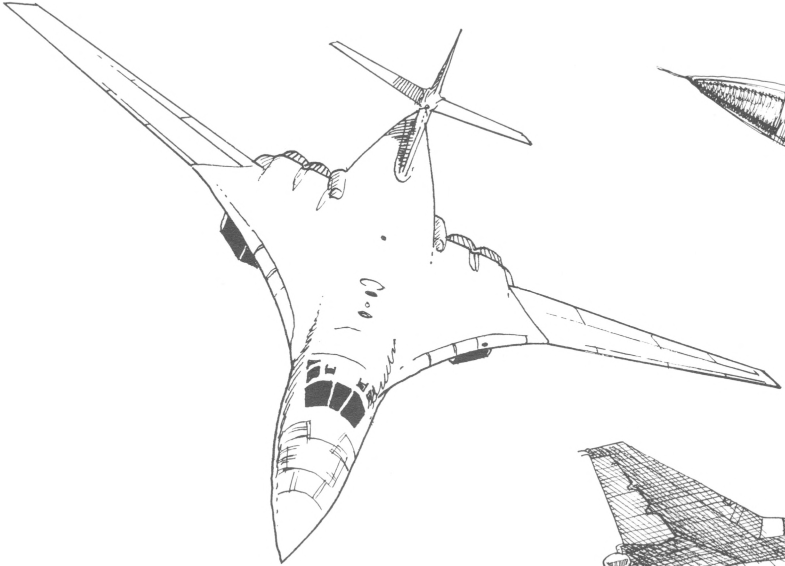
Confusion: 'Fishpot', 'Flagon'

Power: 1 × R-13 reheated turbojet *Span:* 7.15m *Length:* (including probe): 15.76m

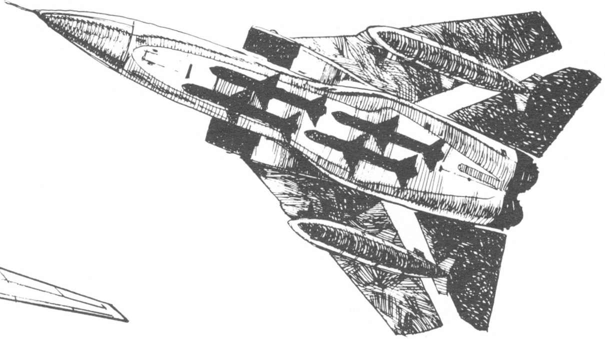




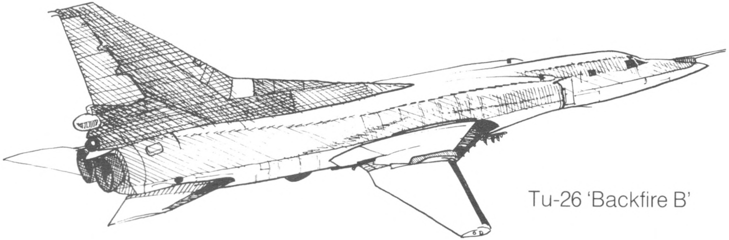
The MiG-21 'Fishbed' fighter is one of the world's most widely used combat aircraft, serving with 28 air forces. 'Fishbed' has been produced in a variety of versions, including the original with a small nose radome 'Fishbed C', all-weather variant with enlarged nose radome 'Fishbed D', main production standard with wider-chord fin 'Fishbed F', deeper dorsal fairing 'Fishbed J', reconnaissance version with pod 'Fishbed H', and variants with enlarged dorsal fairing 'Fishbed K', 'L' and 'N'. The two-seater trainer is 'Mongol'. Versions of the MiG-21 are in production in China as the CAC J-7/F-7, the F-7M being called Airguard. *Countries of origin:* Russia/China. *Main silhouette:* 'Fishbed J'; *middle side view:* 'Fishbed C'; *lowest side view:* 'Mongol'. *Picture:* 'F-7M'.



Tu-160 Blackjack



Tornado F2

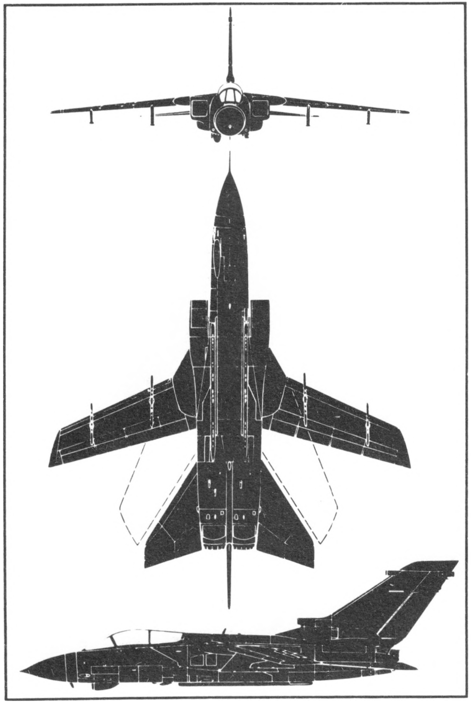


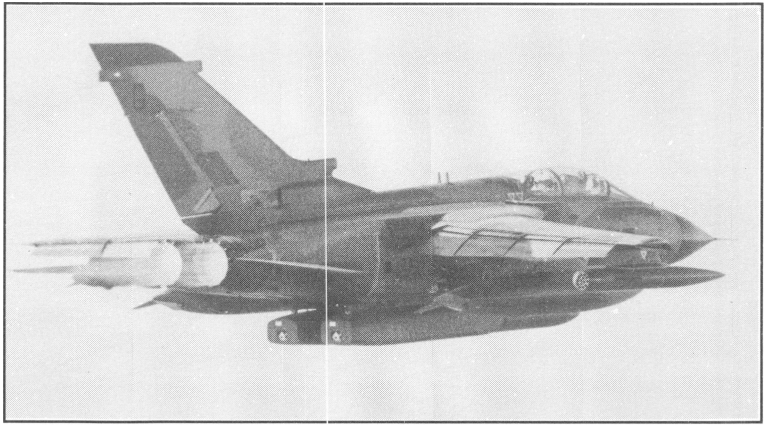
Tu-26 'Backfire B'

Panavia Tornado IDS

Confusion: Tornado ADV, ‘Flogger’, F-111, ‘Fencer’

Power: 2 × RB.199 reheated turbofans *Span:* (wings fully spread): 13.9m *Length:* 16.7m



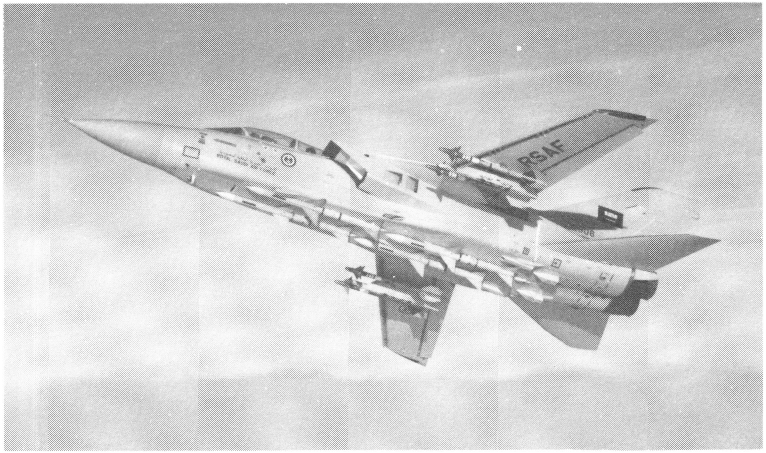


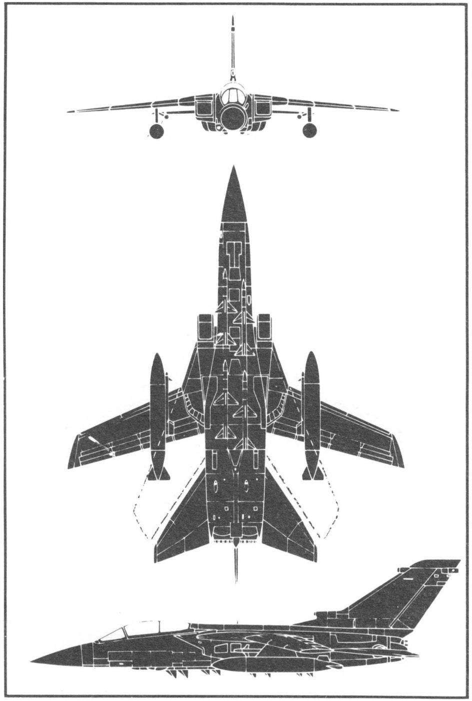
In full scale service, the two-seat Tornado IDS (Interdictor Strike) forms the offensive backbone of the RAF, the German Air Force and Navy, the Italian Air Force and the Royal Saudi Air Force. Total production of the IDS version is scheduled to reach just under 1,000 and in the RAF the type is designated Tornado GR1. Capable of twice the speed of sound at altitude, the IDS can fly at up to 1,480km/h at low level. The IDS can carry a wide range of weapons and two 27mm cannon are fitted in the lower forward fuselage. RAF tactical reconnaissance version is GR1A, maritime strike GR1B and mid-life update of GR1 is GR4. The electronic combat and reconnaissance version for the Luftwaffe is Tornado ECR. *Countries of origin:* Germany/Italy/UK.

Confusion: Tornado IDS, 'Flogger', F-111, 'Fencer'

Panavia Tornado ADV

Power: 2 × RB.199 reheated turbofans *Span:* (wings fully spread): 13.9m *Length:* 18.06m



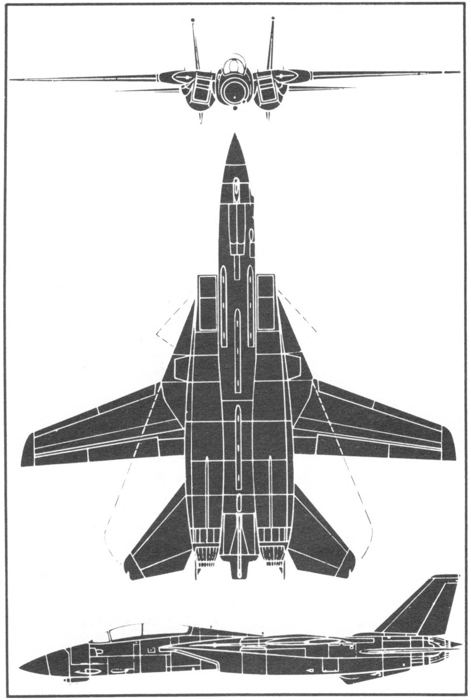


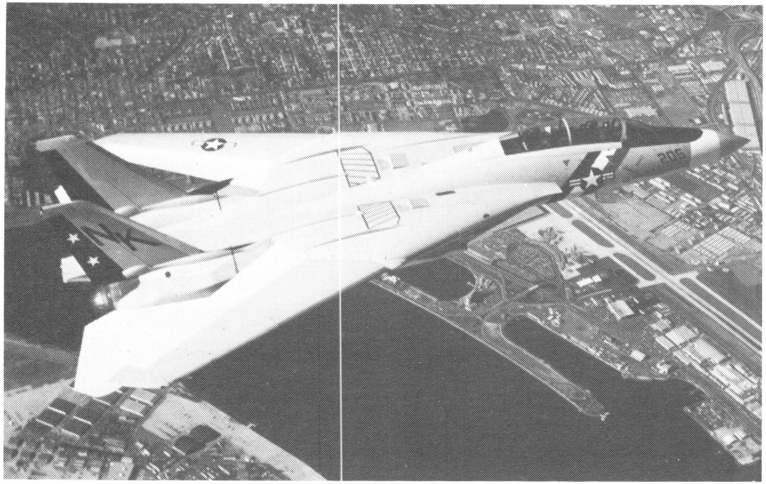
Developed by British Aerospace for the RAF, the Tornado ADV (Air Defence Variant) is the RAF's standard all-weather fighter. With a longer fuselage and Foxhunter airborne interception radar, the Tornado ADV carries a single 27mm cannon and four Sky Flash air-to-air missiles under the fuselage. Two Sidewinder missiles and long-range fuel tanks can be carried under the wings. A Mach 2 aircraft with long endurance, the Tornado ADV is known in the RAF as the F2 and F3 and the type has been bought by Saudi Arabia. Like the Tornado IDS, the ADV is equipped for in-flight refuelling. *Countries of origin:* Germany/Italy/UK.

Grumman F-14 Tomcat

Confusion: F-111, 'Fencer', Tornado

Power: 2 × TF30 or F110 reheated turbofans *Span:* (wings fully spread): 19.55m *Length:* 18.9m



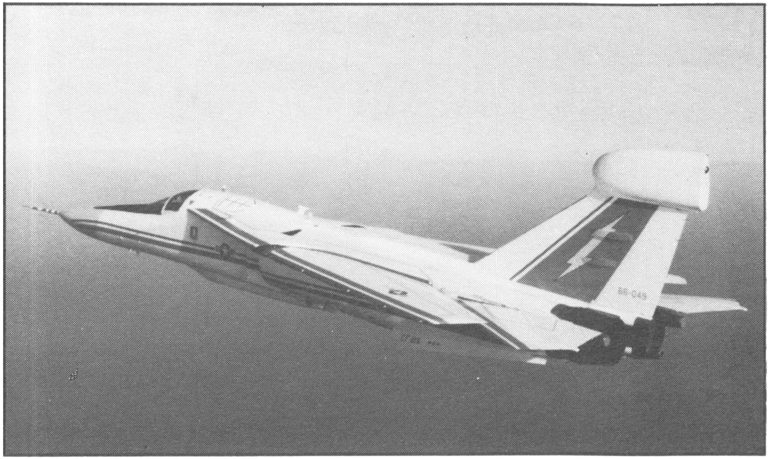


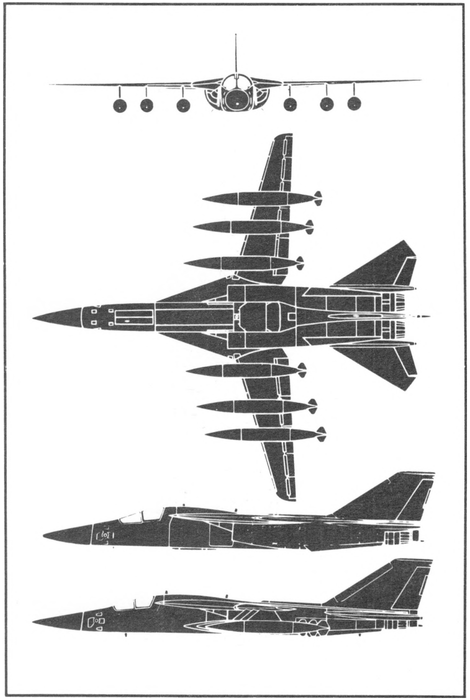
The United States Navy's counterpart to the USAF F-15, the two-seat F-14A Tomcat is an all-weather carrierborne interceptor. With its powerful fire-control system, Tomcat can engage several targets simultaneously with Phoenix, Sparrow or Sidewinder air-to-air missiles. Tomcat is unusual in having twin fins and variable-geometry wings. Performance includes speeds of just over Mach 1 at sea level and Mach 2+ at high altitude. A new version of the Tomcat is designated F-14D Super Tomcat with improved radar and weapon capabilities. *Country of origin:* USA.

Confusion: 'Flogger', 'Fencer', Tornado

General Dynamics F-111

Power: 2 × TF30 reheated turbofans *Span:* (wings fully spread): 19.2m *Length:* 22.4m



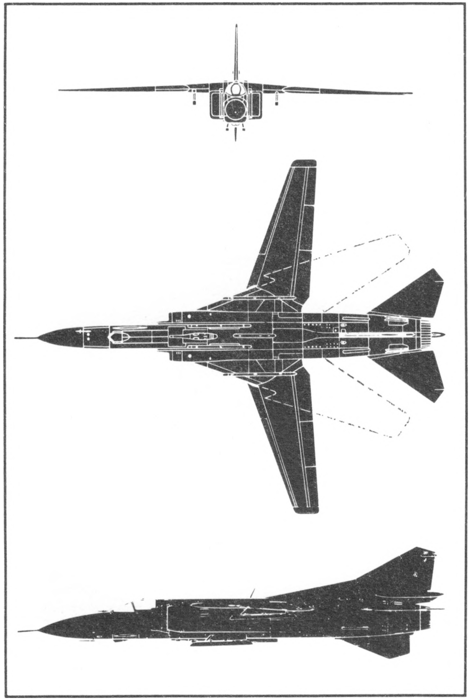


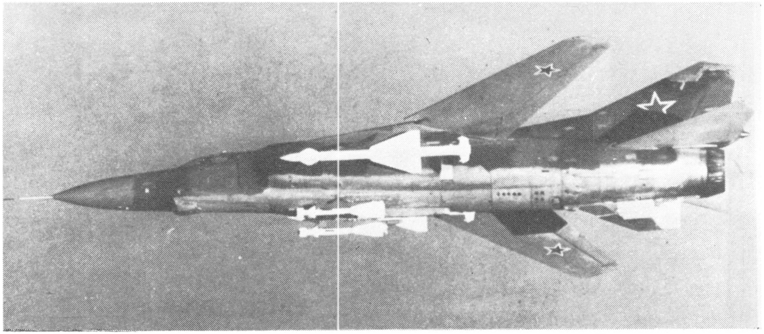
This all-weather two-seat strike/attack aircraft, used by the USAF in Europe and America, carries heavy underwing armament and is capable of over Mach 2 at altitude. Versions are the F-111A (141 built), F-111E (94 built), F-111F (82 built) and FB-111A (77 built). All versions have generally similar outlines. Principal performance figures include maximum speeds of 2,655km/h at 15,000m and 1,472km/h at sea level; ceiling of 18,300m; and maximum weapon loads of 24 × 1,000lb or 50 × 750lb bombs. *Country of origin:* USA. *Main silhouette:* FB-111A; *upper side view:* F-111E. *Picture:* EF-111A.

Mikoyan MiG-23S 'Flogger B'/'E'/'G'/'K'

Confusion: 'Flogger D', Tornado, 'Fencer', F-111

Power: 1 × Tumansky reheated turbofan *Span:* (wings fully spread): 14.25m *Length:* 16.8m



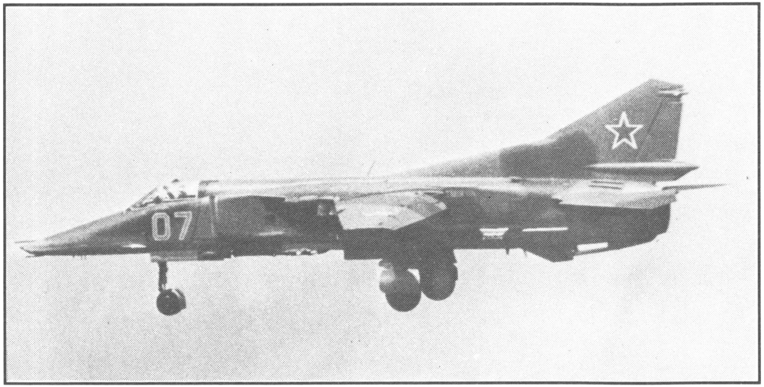


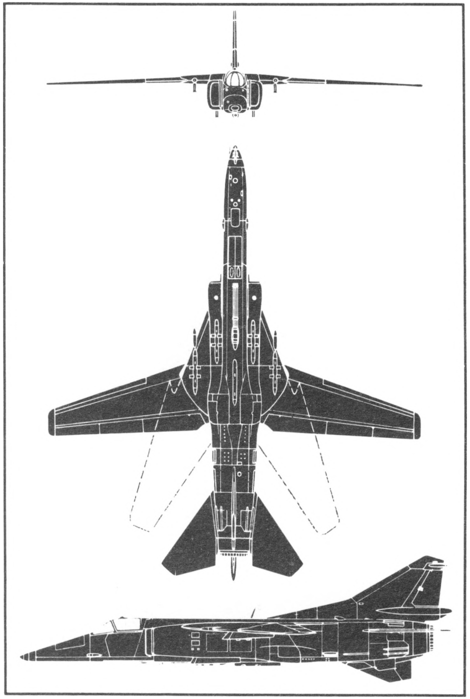
A standard CIS interceptor, this Mach 2+ type is in widespread use in eastern Europe and has been exported to the Middle East, Far East, Africa and Cuba. It carries cannon and missile armament. A two-seat variant is known as the 'Flogger C', and 'Flogger G' is an improved interceptor. The 'Flogger E' export variant is generally similar to the CIS version but is equipped to a lower standard. It is fitted with a smaller radar (NATO code-named 'Blue Jay') in a shorter nose radome and lacks the undernose laser rangefinder and Doppler navigation equipment of 'Flogger B'. 'Flogger K' has wing aerodynamic modifications, smaller ventral fin and smaller 'Flogger G' type dorsal fin. *Country of origin:* Russia. *Silhouette and picture:* 'Flogger B'.

Mikoyan MiG-27 'Flogger D'

Confusion: 'Flogger B', Tornado, F-111, 'Fencer'

Power: 1 × Tumansky reheated turbofan *Span:* (wings fully spread): 14.25m *Length:* 16.46m

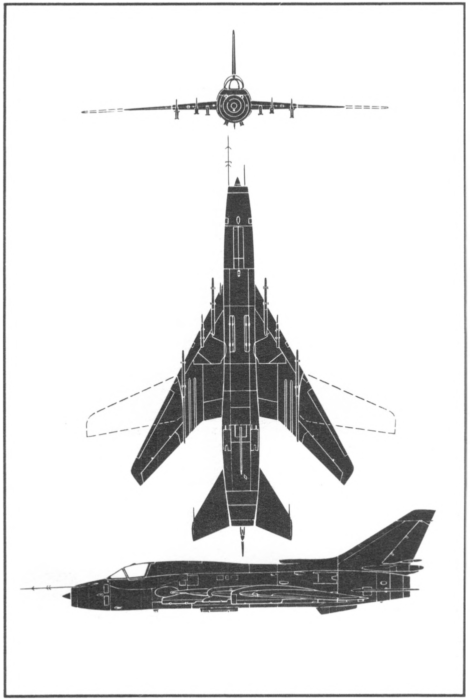


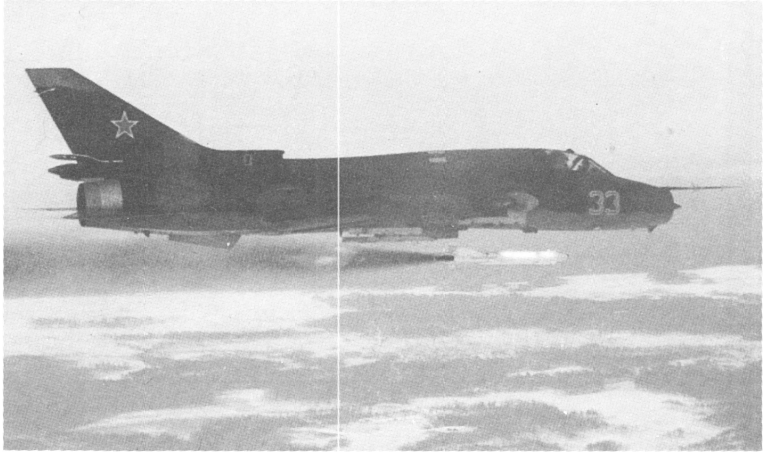


A tactical strike development of 'Flogger B', the 'Flogger D' differs from 'Flogger B' in having fixed air intakes and tailpipe nozzle and a laser rangefinder nose. There are five external racks for missiles and bombs. Compared with the MiG-23 'Flogger B', the MiG-27 has a completely redesigned forward fuselage. The ogival radome is replaced with a sharply tapered nose. A Gatling-type gun replaces the interceptor's twin-barrelled weapon. 'Flogger F' is an export version of the MiG-23 with outline as for MiG-27M 'Flogger D', while 'Flogger H' is similar but with the addition of avionics pods forward of the nosewheel doors. MiG-27U 'Flogger J' has a lipped top to the nose and a nose under-blister. Some 'J's have wing root extensions. *Country of origin:* Russia. *Silhouette and picture:* 'Flogger D'.

Sukhoi Su-17 'Fitter C' *Confusion:* 'Fitter A', 'Fitter B'

Power: 1 × Lyulka or 1 × Tumansky reheated turbojet *Span:* (wings fully spread): 13.7m *Length:* 18.75m



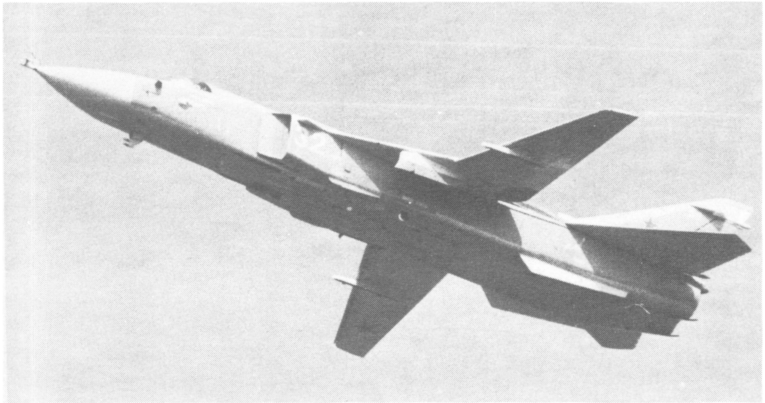


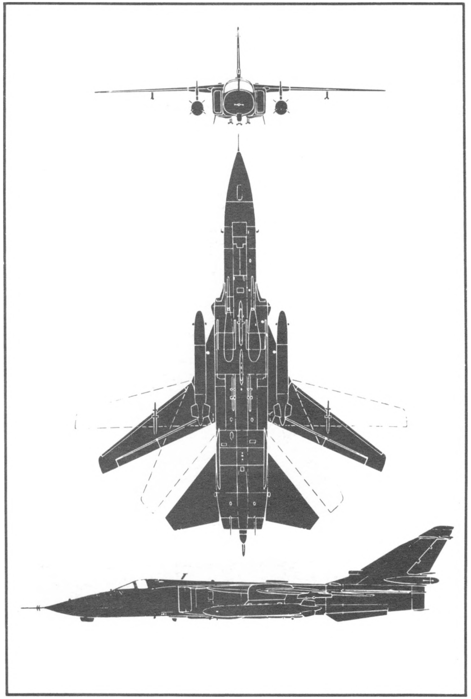
The single-seat 'Fitter C' tactical strike fighter is unusual in being a variable-geometry development of a fixed-wing aircraft. Compared with 'Fitter A', the outer wings pivot, the engine is more powerful and armament and fuel have been increased. Export versions are designated Su-20 and Su-22. Certain other 'Fitters', such as the 'J', have a changed fin and bulged rear fuselage associated with the fitting of a Tumansky engine. 'Fitter K' has an extended dorsal fin with a cooling intake in front. Operators include eastern European countries, Syria and Peru. *Country of origin:* Russia. *Silhouette and picture:* 'Fitter K'.

Confusion: F-111, Tornado, ‘Flogger’

Sukhoi Su-24 ‘Fencer’

Power: 2 × Tumansky reheated turbofans *Span:* (wings fully spread): 17.50m *Length:* 21.29m

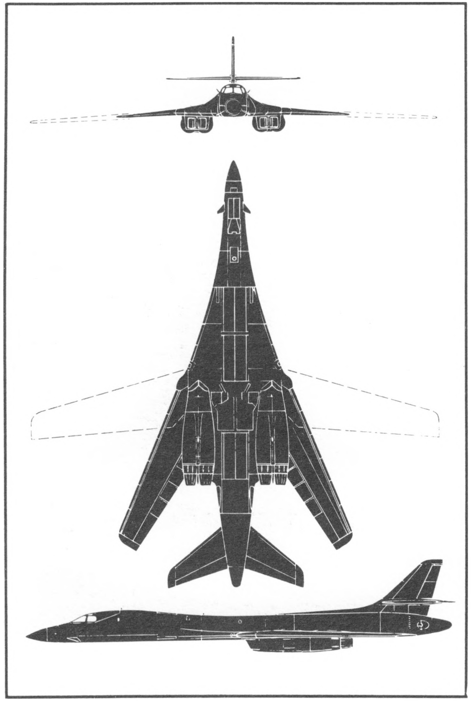


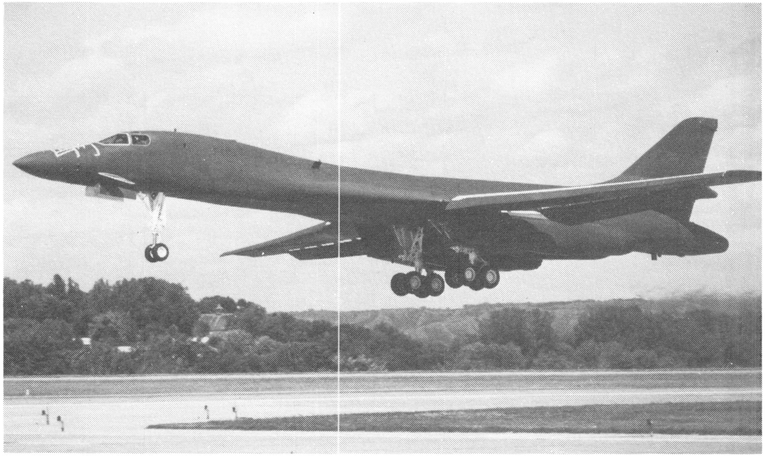


One of the advanced types in the CIS inventory, the Sukhoi Su-24, code-named ‘Fencer’, is a low-level supersonic attack aircraft in the same class as is the American F-111. Some 750 two-seat ‘Fencers’ are in service. Armament comprises two 30mm cannon in the lower fuselage and nuclear/conventional bombs, rocket projectiles, or missiles on eight underwing and fuselage pylons. Maximum speed at altitude is in excess of Mach 2. Five versions ‘A’, ‘B’, ‘C’, ‘D’ and ‘E’ have been identified. The ‘D’ has large wing fences integral with pylons, extended fin base and in-flight refuelling. ‘Fencer E’ is equipped for electronic warfare and ‘Fencer F’ is for jamming and reconnaissance. ‘Fencer’ supplied to Libya, Syria and Iraq. *Country of origin:* Russia. *Silhouette:* ‘Fencer D’. *Picture:* ‘Fencer E’.

Rockwell International B-1B *Confusion:* 'Backfire'

Power: 4 × F101 reheated turbofans *Span:* (wings fully spread): 41.66m *Length:* 44.7m



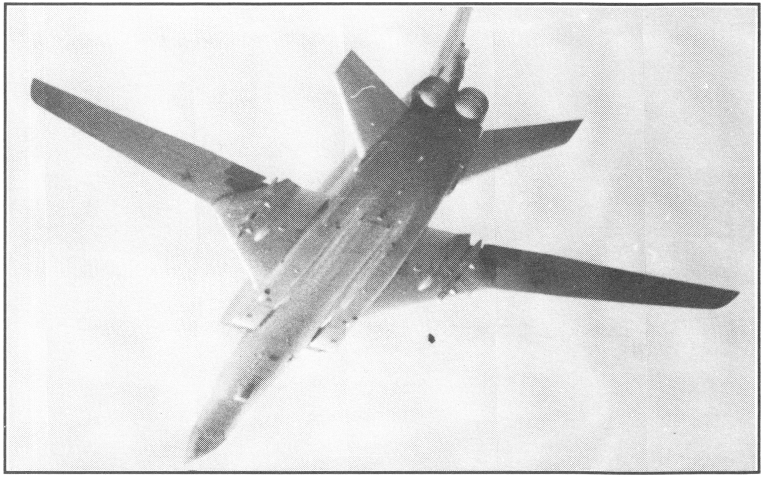


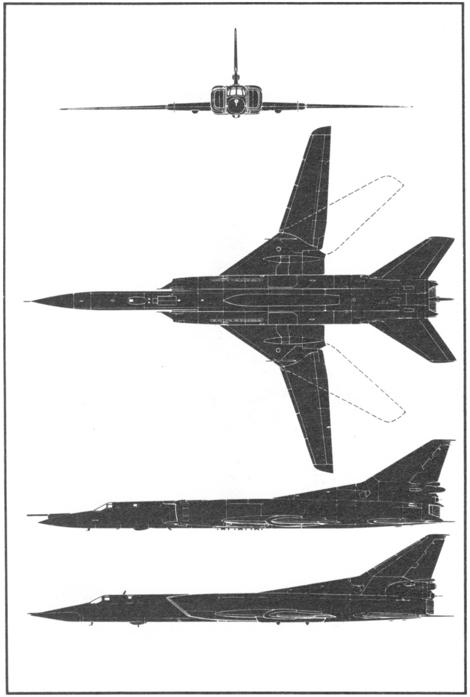
First flown in 1974, the B-1 supersonic long-range bomber was to have been the subject of large orders for the US Air Force. These were cancelled by the Carter administration and only four prototypes were completed. A new programme for 100 B-1Bs was announced in 1981 and production was completed in 1988. Externally similar to the B-1, the B-1B carries a crew of four and is armed with Air-Launched Cruise Missiles (ALCMs) and Short-Range Attack Missiles (SRAMs). The B-1B can operate low down at supersonic speeds or can achieve speeds of up to Mach 2 at altitude. Maximum range is 9,820km. *Country of origin:* USA.

Confusion: 'Fencer', F-111, Tornado, B-1, 'Blackjack'

Tupolev Tu-22M 'Backfire'

Power: 2 × Kuznetsov reheated turbofans *Span:* (wings fully spread): 34.30m *Length:* 39.6m



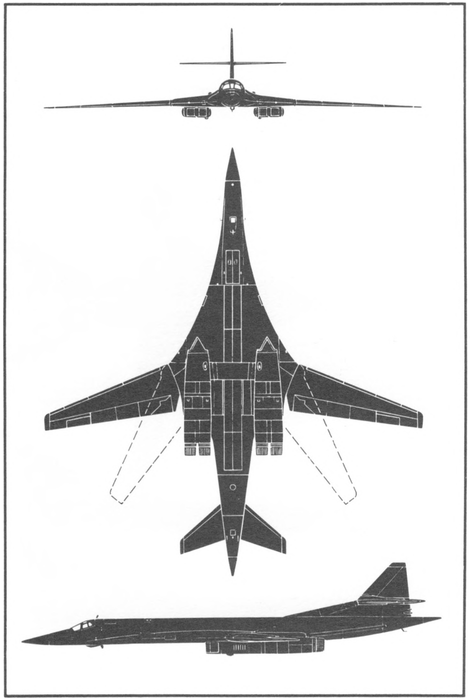


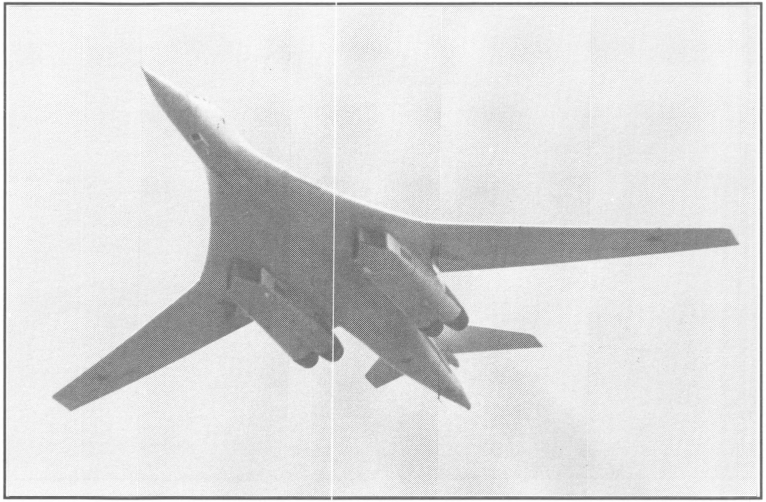
The CIS strategic bomber force consists largely of 'Backfires'. Carrying either nuclear or conventional weapons, 'Backfire' can fly a combat radius of 4,000km and is capable of supersonic speeds at all altitudes. Three versions exist: the preliminary 'Backfire A', the definitive 'Backfire B' and 'Backfire C' with wedge type intakes. Over 200 Backfires are in service. 'Backfire' operates alongside the much larger 'Blackjack' detailed on the next page. *Country of origin:* Russia. *Main silhouette:* 'Backfire B'; *lower side view:* 'Backfire C'. *Picture:* 'Backfire C'.

Tupolev Tu-160 'Blackjack'

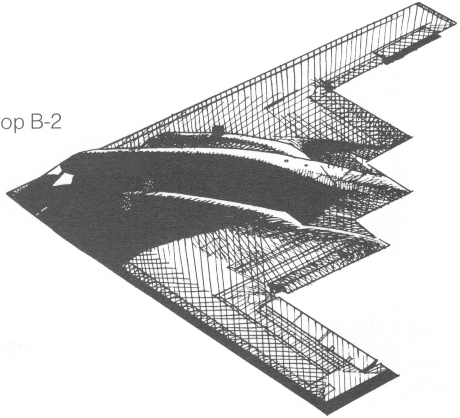
Confusion: 'Backfire', B-1B

Power: 4 × Soloviev reheated turbofans *Span:* (wings fully spread): 55.7m *Length:* 54m

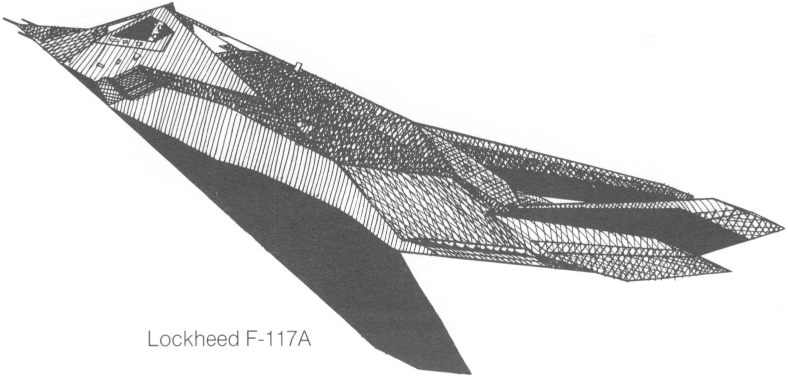




The Tu-160 code-named 'Blackjack' variable geometry wing strategic bomber is a completely new design and not just a development of 'Backfire'. It entered service in 1988 and is in production. Maximum speed is Mach 1.88 and unrefuelled radius of action approximately 7,300km. 'Blackjack's' armament consists of air-launched cruise missiles, short-range attack missiles and free-fall bombs. No gun armament is carried. Four crew members are carried. *Country of origin:* Russia.



Northrop B-2

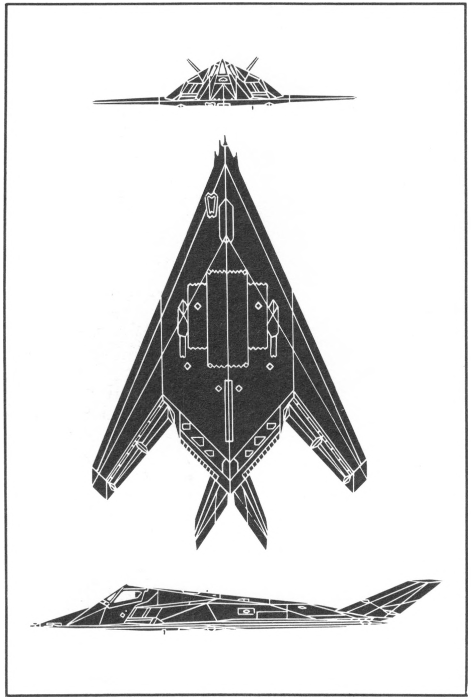


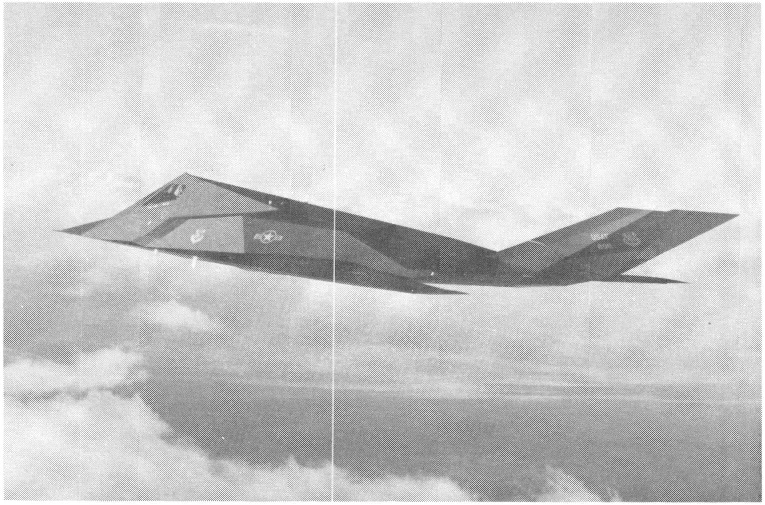
Lockheed F-117A

Lockheed F-117A

Confusion: —

Power: 2 × 404 turbofans *Span:* 13.2m *Length:* 20.08m



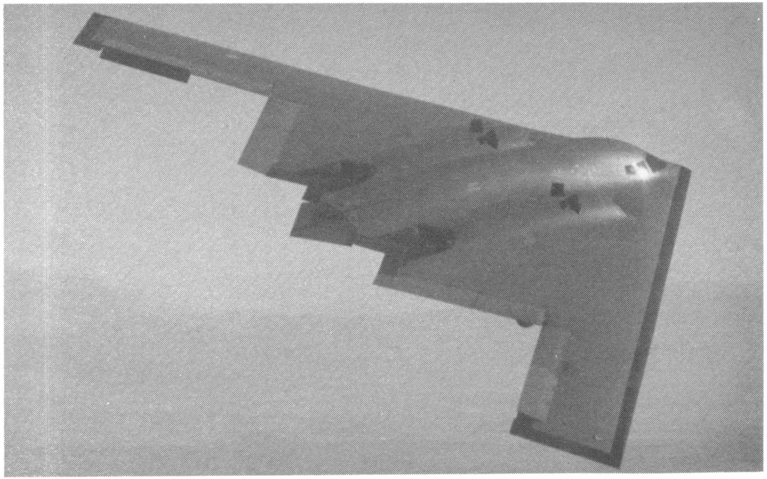


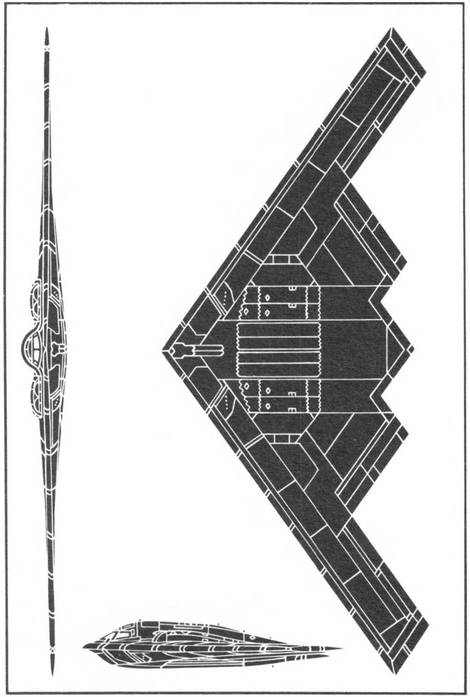
Used successfully in the Gulf War with 1,270 missions, the F-117A is a single-seat 'stealthy' precision attack fighter which was kept secret for many years. First flown in December 1977, a total of 56 F-117As are in service. Very unusual in shape, the aircraft has a multi-faceted airframe designed to have a minimum radar signature and low infra-red emission. Armament is carried internally and consists of laser-guided bombs and guided missiles. Maximum level speed is in excess of Mach 1. *Country of origin:* USA.

Confusion: —

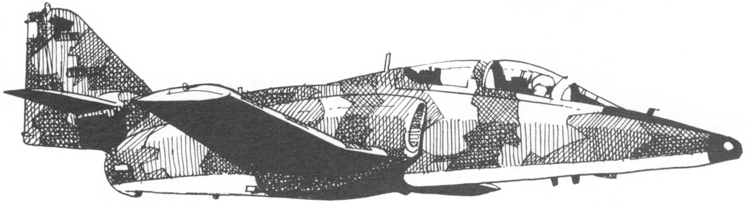
Northrop B-2

Power: 4 × F118 turbofans *Span:* 52.4m *Length:* 21m

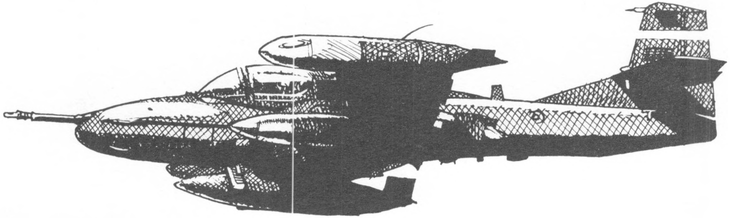




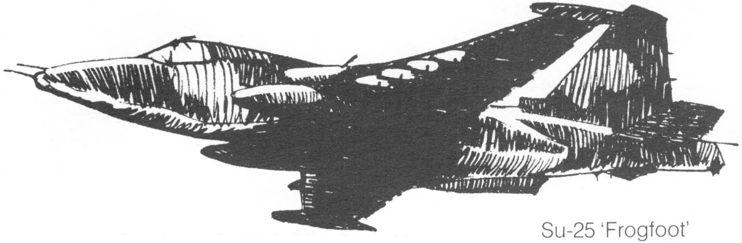
The second 'Stealth' aircraft to be revealed is the Northrop B-2 bomber. The company has adopted a different approach to the F117A in trying to reduce radar reflection, infra-red imprint, etc. The B-2 is that rare specimen, a true flying wing without fins. The swept wing itself has a 'sawtooth' trailing-edge and the twin intakes and exhausts for the four engines are in the wing upper surface. The B-2 has three crew and can carry 16 SRAM missiles or nuclear bombs. The programme involves possibly up to 76 production aircraft, the first base to receive B-2s being Whiteman AFB, Missouri. The B-2 first flew in July 1989. *Country of origin:* USA.



CASA Aviojet



Cessna A-37 Dragonfly

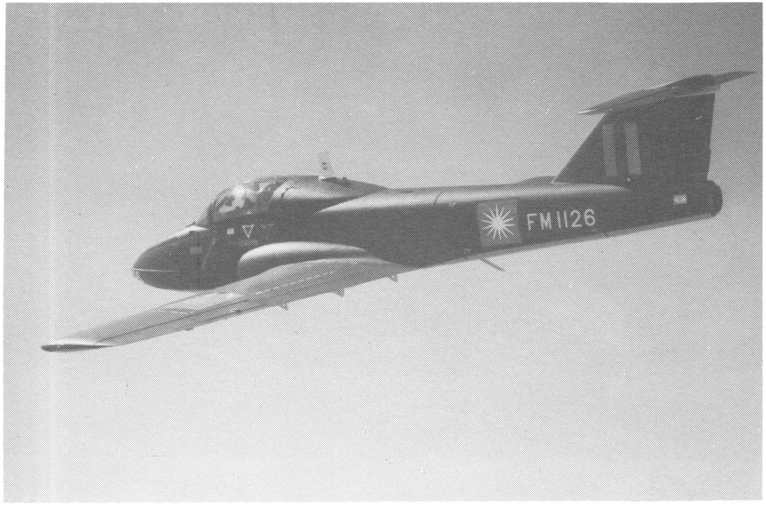


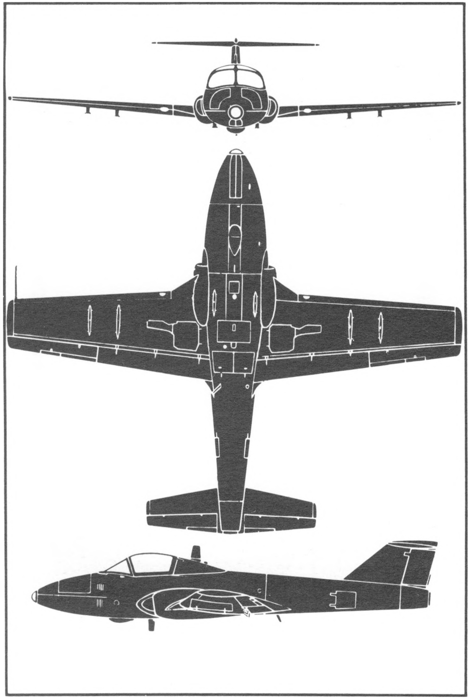
Su-25 'Frogfoot'

Confusion: Paris, Delfin

Canadair CL-41 Tutor

Power: 1 × J85 turbojet *Span:* 11.13m *Length:* 9.75m



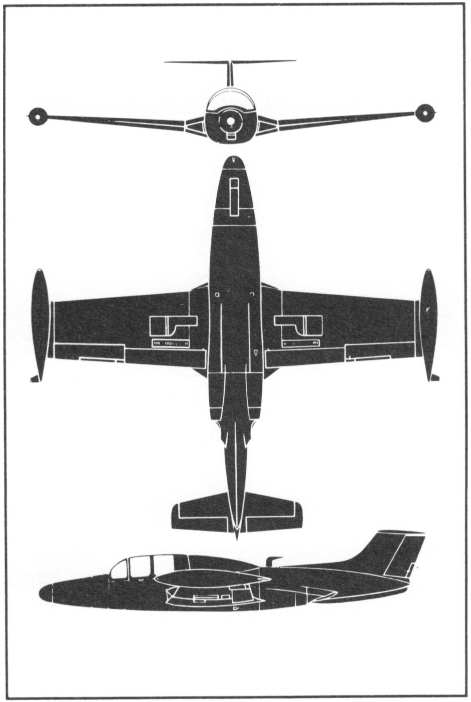


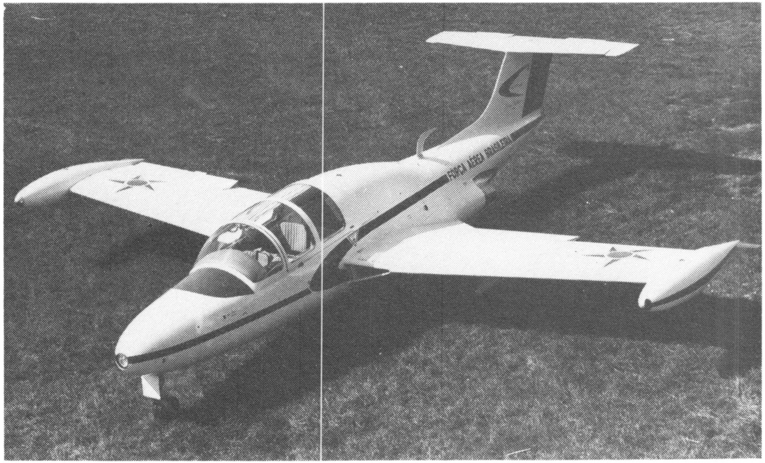
Originally developed as a private venture, the Canadair CL-41 Tutor side-by-side two-seat trainer was adopted by the Royal Canadian Air Force as the CT-114. Production was completed in 1966 after 190 had been built. A total of 20 CL-41Gs with fuselage pylons were built for Malaysia, named Tebuan. These aircraft are believed to be in store. Basic armament comprises bombs, rockets and gun pods on wing hardpoints. Maximum speed is 774km/h. *Country of origin:* Canada. *Silhouette and picture:* CL-41G.

Morane-Saulnier MS-760 Paris

Confusion: Delfin, Tutor

Power: 2 × Marboré turbojets *Span:* 10.15m *Length:* 10.05m



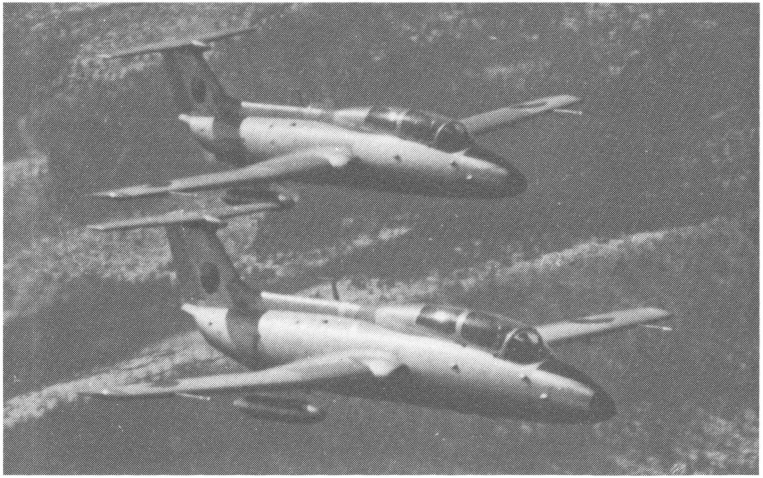


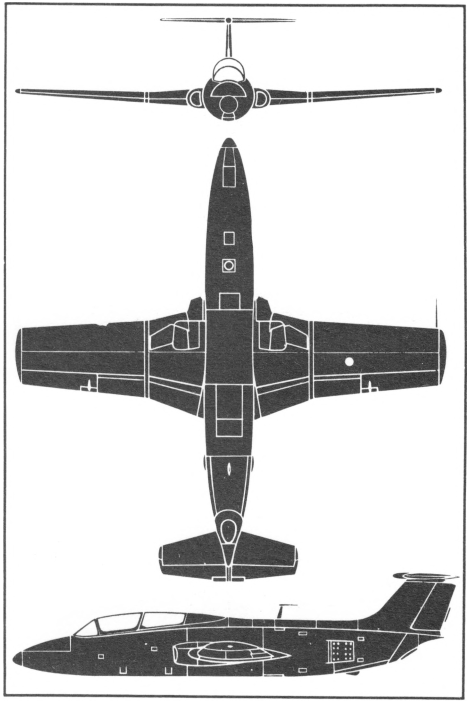
A four-seat high-speed civil and military communications aircraft, the MS-760 Paris first flew in July 1954. Some 165 Paris Mks I and II were built. The Paris II has higher powered engines and more fuel capacity. A prototype of the Paris III, with six seats and extended wingtips, was built. The Paris I has a maximum speed of 650km/h and a range of 1,500km. For weapon training the Paris II can carry 7.5mm machine guns and bombs or rockets. The Paris remains in service in France and Argentina. *Country of origin:* France. *Silhouette and picture:* Paris I.

Confusion: Albatross, Paris, Tutor

Aero L-29 Delfin 'Maya'

Power: 1 × M-701 turbojet *Span:* 10.29m *Length:* 10.81m



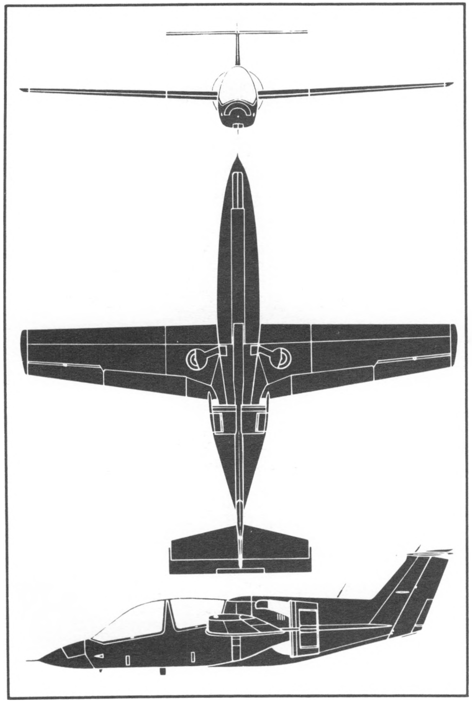


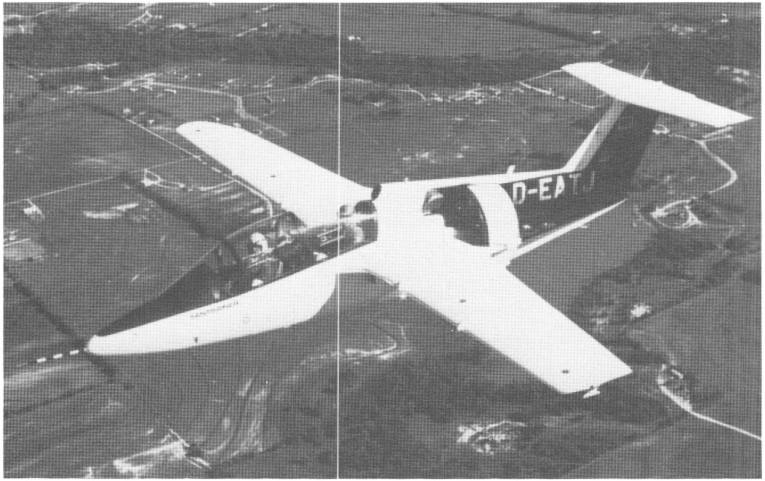
Designed as an eastern European basic trainer, the L-29 Delfin, NATO code-name 'Maya', first entered service in 1963. The air forces of Czechoslovakia, the CIS, Bulgaria, Romania and Hungary use the Delfin and other countries have been supplied with the type. Two underwing pods can carry bombs, rockets, drop tanks or 7.62mm guns. An aerobatic version of the Delfin with a single seat is designated the L-29A Akrobat. *Country of origin:* Czechoslovakia. *Silhouette and picture:* L-29.

RFB Fantrainer

Confusion: Delfin, CL-41

Power: 1 × Allison 250 turboshaft *Span:* 9.7m *Length:* 9.25m

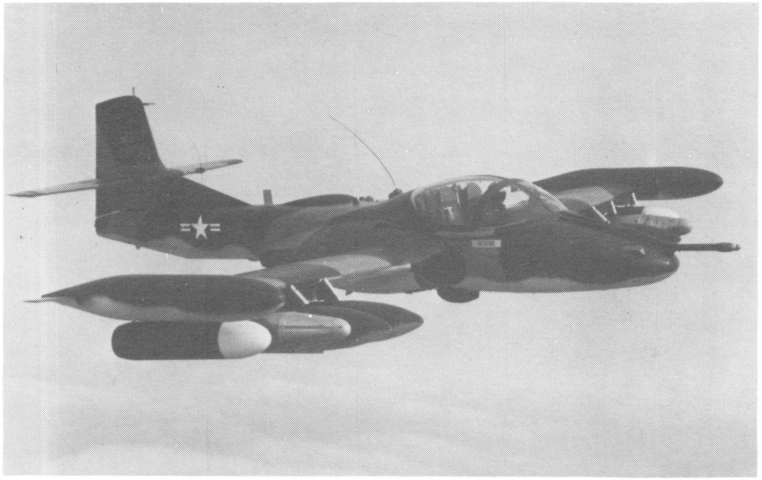


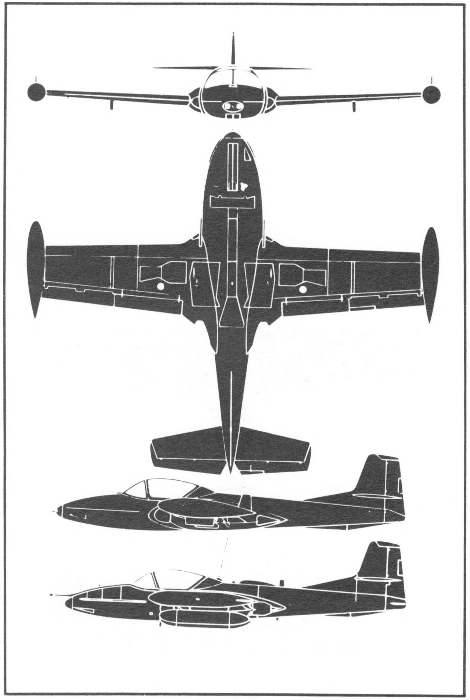


Although not strictly a 'jet', the Fantrainer looks exactly like one in the air, albeit without a rear jetpipe. A unique two-seat basic trainer, the Fantrainer has a turboshaft engine driving a ducted fan in the fuselage just aft of the wings. First flown in 1978, the aircraft is on offer in two forms, the model 400 with a 420hp engine and the 600 with a 650hp unit. The Royal Thai Air Force has bought 47 Fantrainers and two are being leased to Lufthansa. Take-off weight of the model 400 is 1,799.7kg and maximum speed 370km/h. *Country of origin:* Germany. *Picture:* Fantrainer model 600.

Cessna A-37 Dragonfly

Power: 2 × J85 turbojets *Span:* 10.3m *Length:* 8.93m



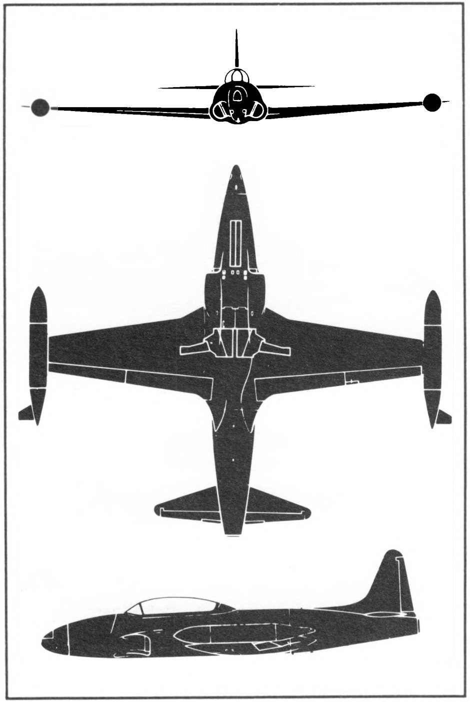


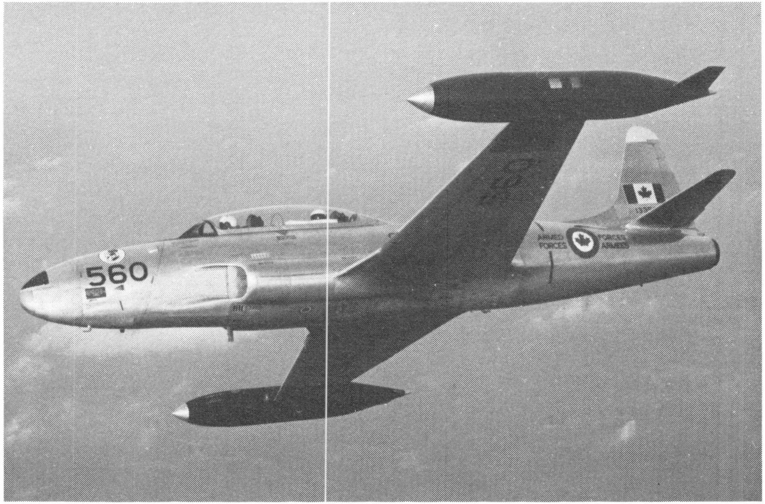
The standard USAF basic trainer (T-37B), the Dragonfly originally flew with Continental T69 engines. Many Dragonflies are in service with a number of air forces as trainers, with underwing pylons (T-37C) and with a Minigun in the fuselage and four weapon stations on the wings (A-37). As a forward air control aircraft the Dragonfly is designated OA-37B. A large number of Dragonflies have been built. Maximum speed is 816km/h and range with weapon load is 740km. *Country of origin:* USA. *Main silhouette:* T-37A; *lower side view:* A-37C. *Picture:* A-37B.

Lockheed T-33A Shooting Star

Confusion: Galeb

Power: 1 × J33 or 1 × Nene turbojet *Span:* 11.85m *Length:* 11.48m

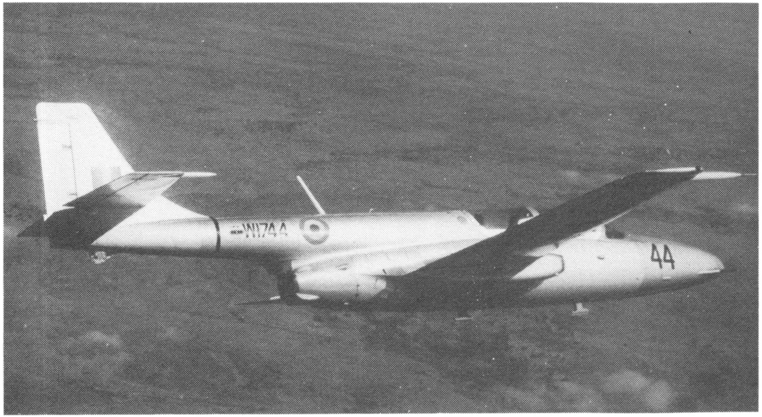


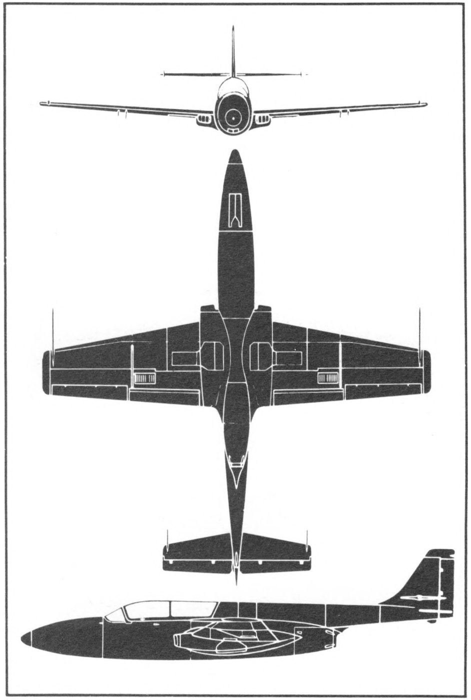


Trainer version of the US Air Force's first operational jet fighter, the T-33A (originally TF-80C) first flew as far back as 1948. A total of 6,600 T-33s were built and the type is still in service in some numbers. Some Shooting Stars were built with noses modified for reconnaissance. Several air forces still operate T-33s, including the Canadian Forces where the type is known as the CT-133. Maximum speed is 960km/h and endurance 3.12h. *Country of origin:* USA. *Picture:* CT-133.

WSK-PZL-Mielec TS-11 Iskra

Power: 1 × SO-1 turbojet *Span:* 18.18m *Length:* 12.74m



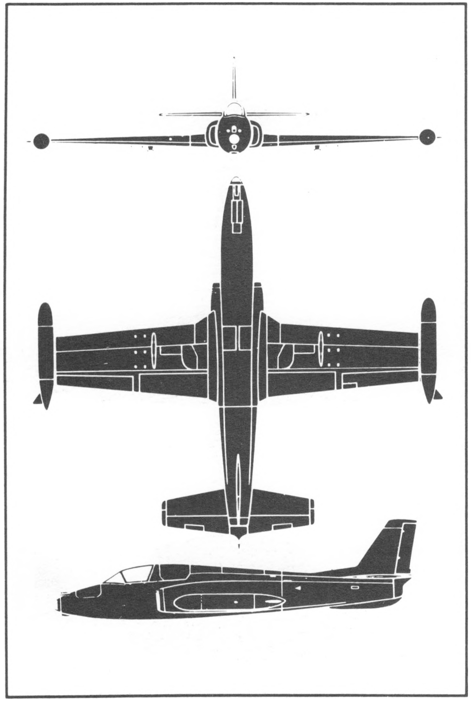


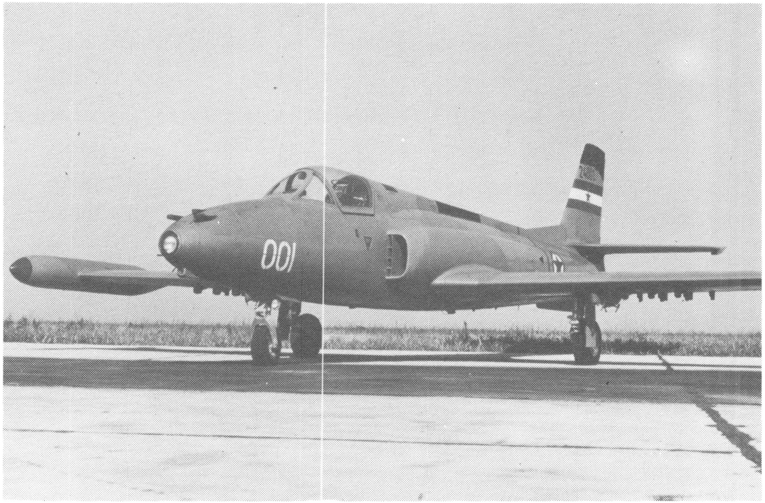
The Polish Air Force took delivery of its first TS-11 Iskra tandem two-seat aerobatic trainer in 1963. The layout is unusual, with the engine exhausting under the fuselage and the tail assembly being carried by a long boom. Forward-firing machine guns are housed in the fuselage and weapons can be carried on four underwing pylons. Several hundred Iskras have been built. Main performance figures include a maximum level speed at 5,000m of 720km/h; maximum rate of climb at sea level of 888m/min and service ceiling of 11,000m. The Iskra is operated by Poland and India. *Country of origin:* Poland.

SOKO G-2 Galeb/Jastreb

Confusion: Iskra, Delfin

Power: 1 × Viper turbojet *Span:* 10.47m *Length:* 10.34m



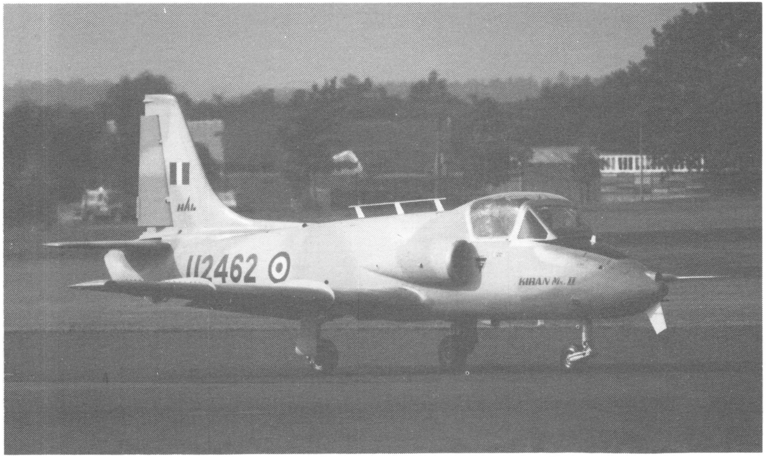


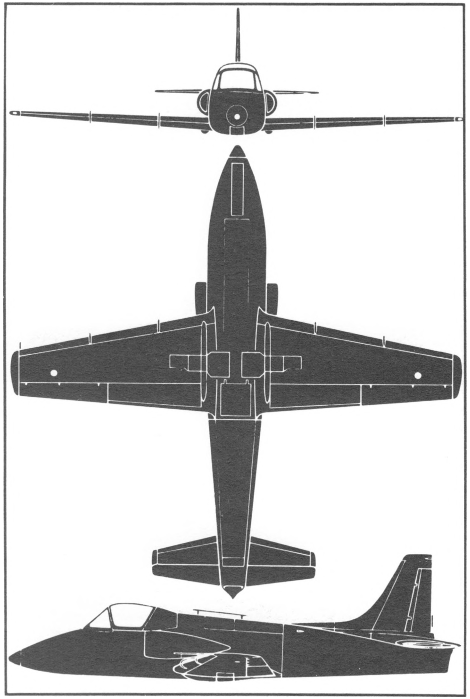
The first Yugoslav jet to enter production, the G-2 Galeb was first flown in 1961 and is now the standard Yugoslav Air Force basic trainer. Also in service is the TJ-1 Jastreb single-seat ground-attack version. This is equipped with three nose machine guns and eight underwing pylons for weapons, compared with the Galeb's two machine guns and smaller weapon load. Maximum speed is 756km/h and maximum endurance 2hr 30min. *Country of origin:* Yugoslavia. *Silhouette and picture:* Jastreb.

Confusion: Strikemaster, MB-326

HAL Kiran

Power: 1 × Viper turbojet *Span:* 10.7m *Length:* 10.6m



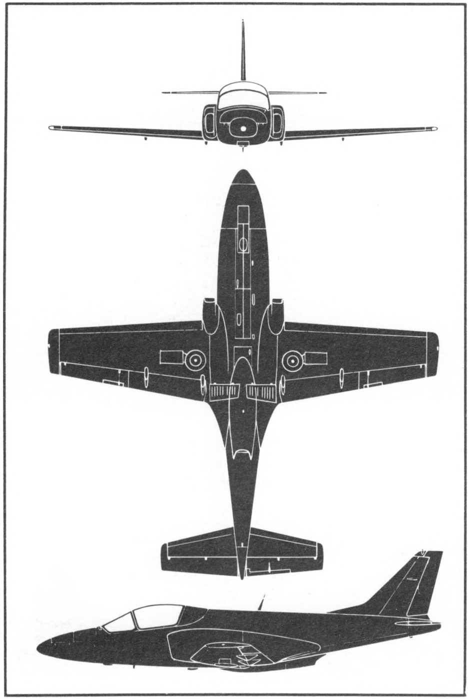


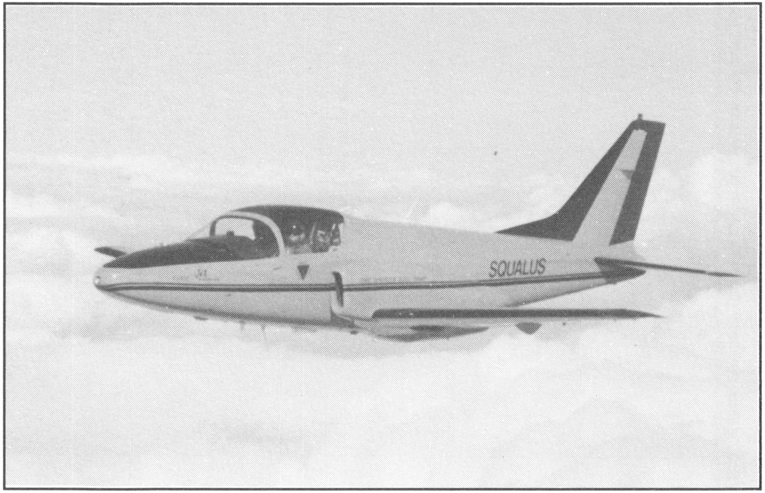
Designed to replace the Vampire trainers licence-built in India, the HJT-16 Kiran basic trainer was first flown in 1964. The aircraft bears a superficial resemblance to the Jet Provost/Strikemaster but is in fact totally of Indian design. The crew of two are seated side-by-side. A weapon-carrying variant is the Mk IA. A development of the Kiran I is the Orpheus-powered Mk II, intended for counter-insurgency work and weapons training. Two fuselage machine guns and four underwing pylons are fitted. Maximum speed of the Kiran I is 659km/h. *Country of origin:* India. *Silhouette:* Kiran I. *Picture:* Kiran II.

Promavia Jet Squalus

Confusion: Kiran

Power: 1 × TFE109 turbofan *Span:* 9.04m *Length:* 9.36m



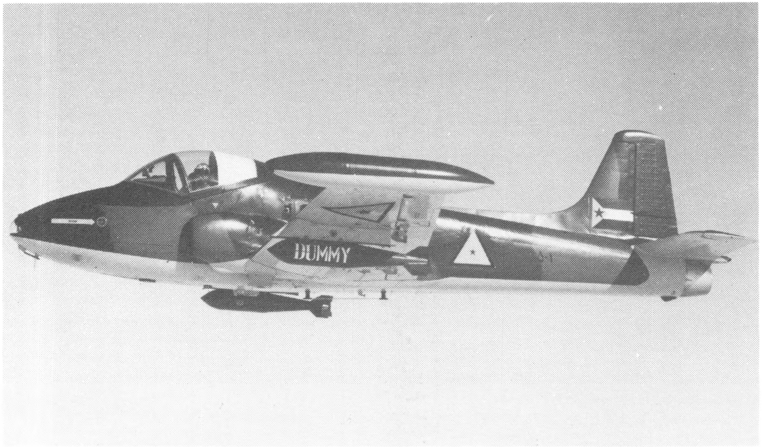


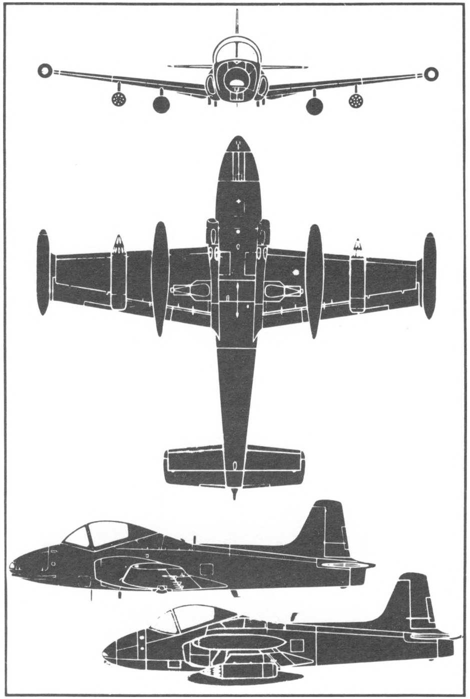
Developed in Belgium, the Jet Squalus two-seat trainer prototype was first flown in April 1987, designated the F1300 NGT. It is intended for both civil and military use, with production offered on-site across the world. Various other variants are proposed, including those for maritime, surveillance, reconnaissance, attack training and target towing. Two follow-on projects are a tandem-seat trainer ATTA 3000 and the ARA 3600 single-seat light attack aircraft. *Country of origin:* Belgium.

Confusion: Kiran, MB-326

BAe Strikemaster

Power: 1 × Viper turbojet *Span:* 10.77m *Length:* 10.27m



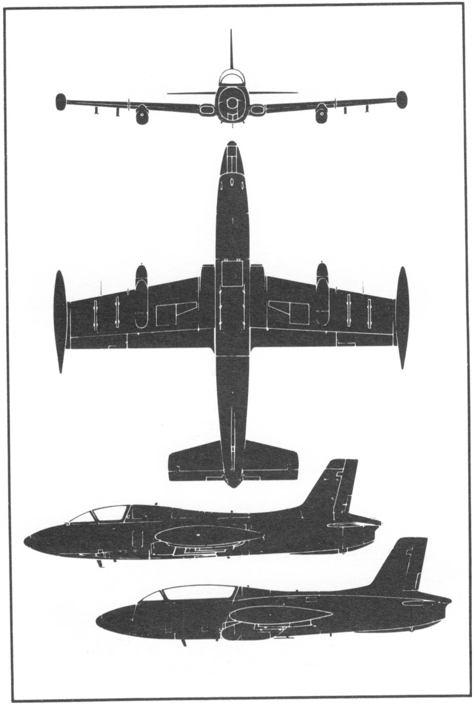


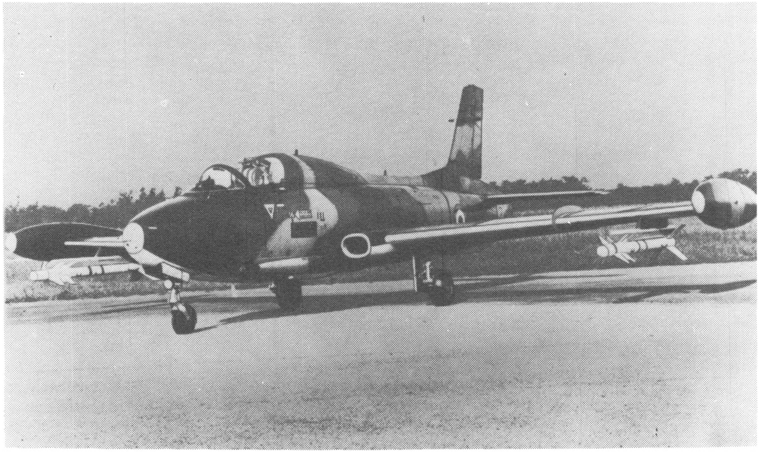
A two-seat basic trainer/light strike aircraft, the Strikemaster was developed from the Jet Provost, which was the RAF's first jet trainer. The Strikemaster has improved performance, more power and increased weapon load compared with the Jet Provost. The Jet Provost first flew in 1954 and the Strikemaster in 1967. The Strikemaster has a top speed of 760km/h and a weapon load of 1,360kg plus two fuselage-mounted machine guns. The Strikemaster has been widely exported. *Country of origin:* UK. *Main silhouette:* Strikemaster; *upper side view:* Jet Provost. *Picture:* Strikemaster.

Aermacchi MB-326

Confusion: Kiran, Galeb, Strikemaster

Power: 1 × Viper turbojet *Span:* 10.85m *Length:* 10.64m



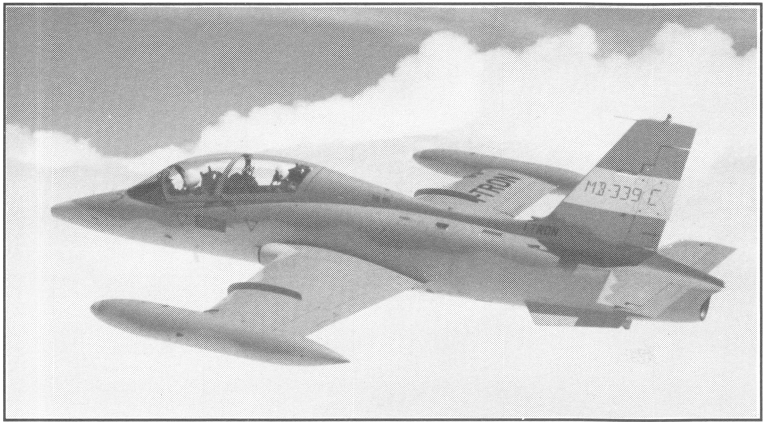


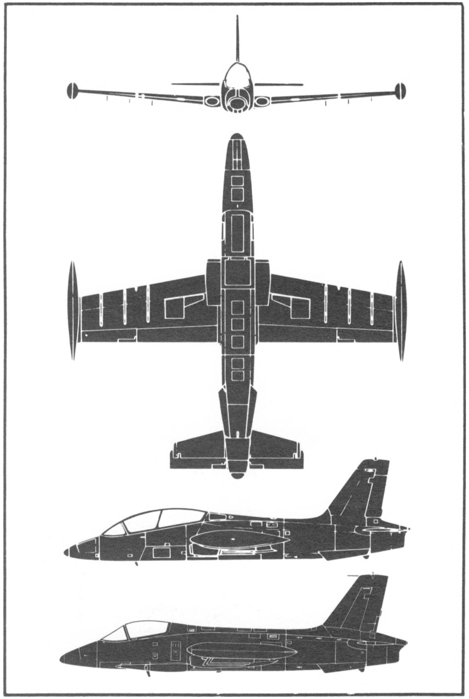
The MB-326 is a highly successful two-seat basic/advanced trainer and single-seat trainer/light attack aircraft (326K). Several hundred 326s of various versions have been built and licence production has been undertaken in Australia and South Africa; in the latter country the type is called the Impala. Up to 1,815kg of armament can be carried on underwing pylons, including rockets, bombs, AS.12 missiles and gun pods. A reconnaissance pack can be fitted. Maximum speed is 686km/h. *Country of origin:* Italy. *Main silhouette:* MB-326; *upper side view:* MB-326K. *Picture:* MB-326K.

Confusion: Hawk, MB-326

Aermacchi MB-339A

Power: 1 × Viper turbojet *Span:* 10.86m *Length:* 10.97m



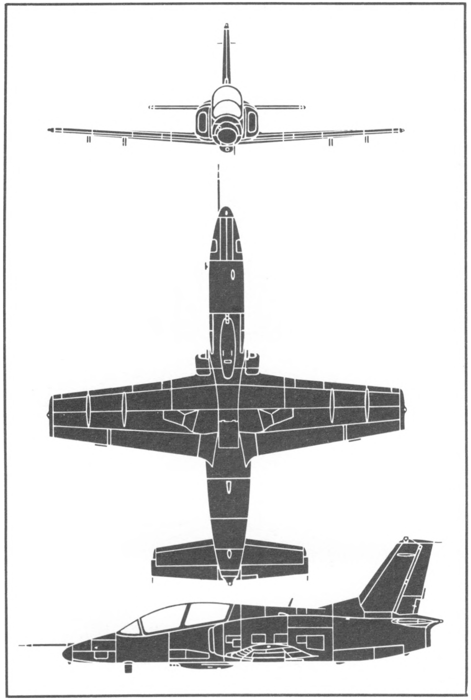


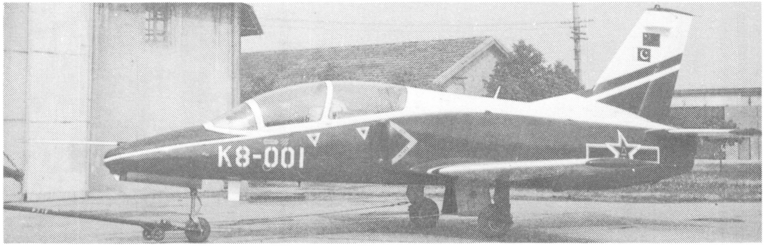
Based on and bearing a close resemblance to its predecessor, the MB-326, the two-seat MB-339A basic/advanced trainer has a redesigned forward fuselage. Auxiliary fuel tanks are carried at the wingtips and there are six underwing hardpoints for up to 1,815kg of bombs and rocket projectiles. Cameras or an armament pod can be carried under the forward fuselage. The prototype was flown in 1976 and the type has been produced for several air forces and navies. A single-seat tactical support variant is known as the MB-339K. Maximum speed is 898km/h. Latest variant is the MB-339C with revised nose and tail. *Country of origin:* Italy. *Main silhouette:* MB-339A; *lower side view:* MB-339K. *Picture:* MB-339C.

NAMC/PAC K-8

Confusion: Aviojet

Power: 1 × TFE731 turbofan *Span:* 9.63m *Length:* 11.6m



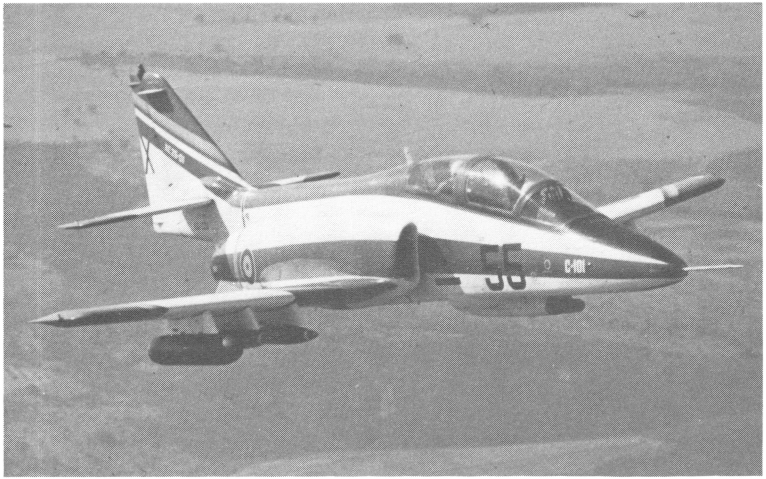


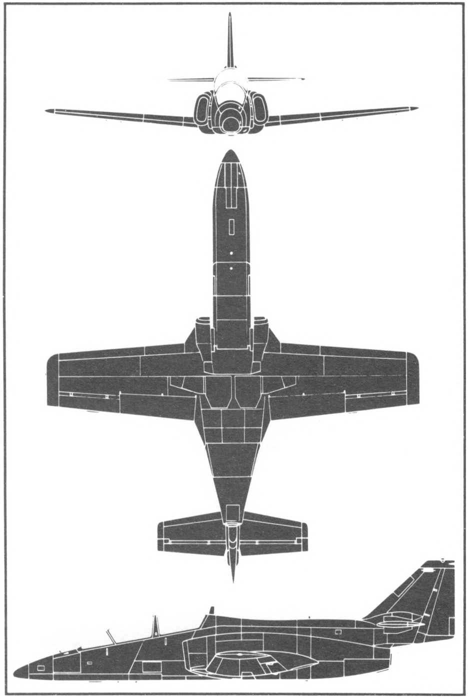
Jointly developed by Nanchang Aircraft Manufacturing Co in China and Pakistan Aeronautical Complex, the K-8 is a tandem two-seat basic jet trainer and light ground attack aircraft. First flight was in November 1990 and it is anticipated that the type will be adopted by the air forces of both countries. Maximum level speed at sea level is 800km/h and normal range 1,487km. A 23mm gun pod is fitted under the centre fuselage and four underwing stores points can carry gun pods, rockets, bombs, missiles or fuel tanks. *Countries of origin:* China/Pakistan.

Confusion: Hawk, MB-339

CASA C-101 Aviojet

Power: 1 × TFE731 turbofan *Span:* 10.6m *Length:* 12.5m



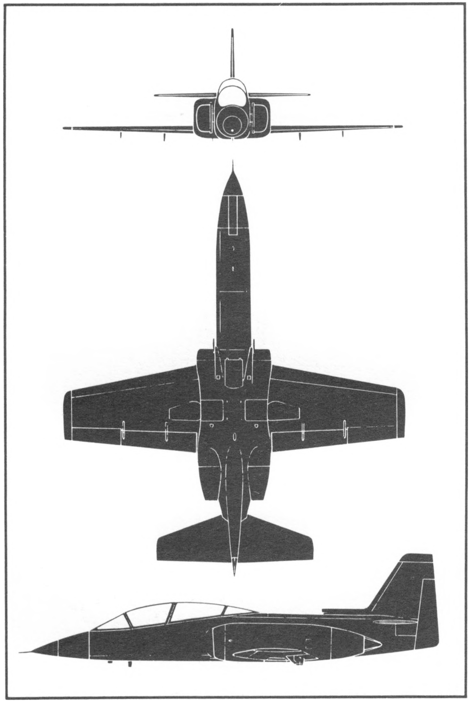


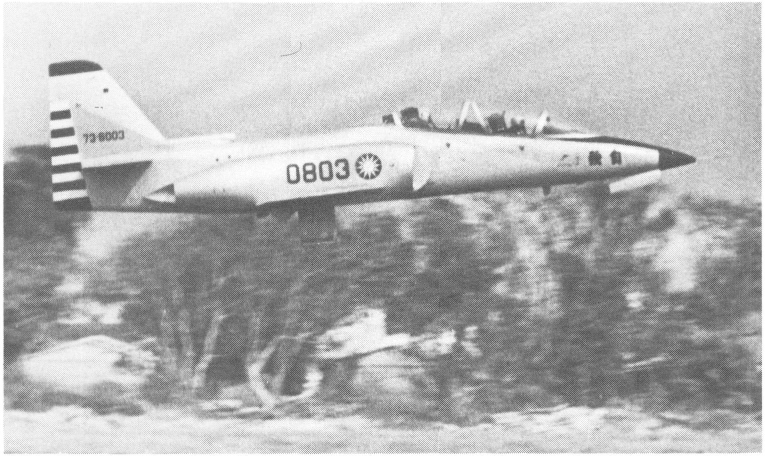
A two-seat basic/advanced jet trainer and light ground-attack aircraft, the C-101EB Aviojet went into service with the Spanish Air Force in 1980 as the E.25 Mirlo. In its armed export version the C-101BB can carry two machine guns or a cannon under the fuselage and there are six wing positions for external stores such as bombs, rockets, guided missiles or ECM pods. In light attack form the aircraft is designated C-101CC and an enhanced trainer version is the C-101DD. Maximum speed is 775km/h and range 3,000km. *Country of origin:* Spain.

AIDC AT-3

Confusion: Aviojet

Power: 2 × TFE 731 turbofans *Span:* 10.46m *Length:* overall: 12.9m



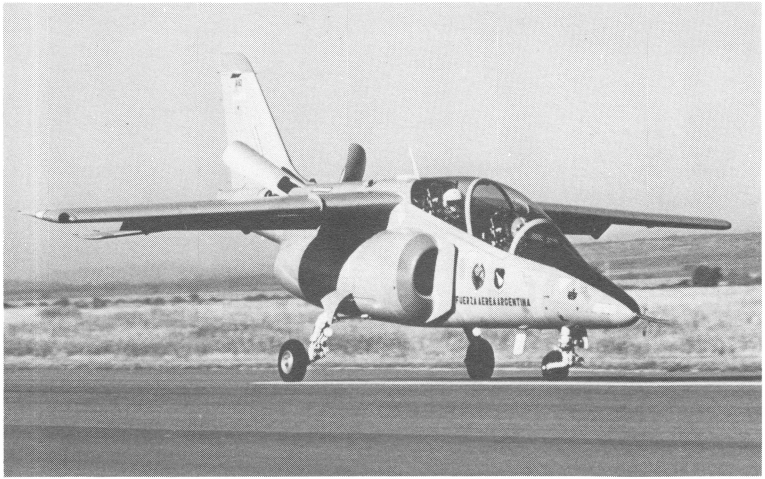


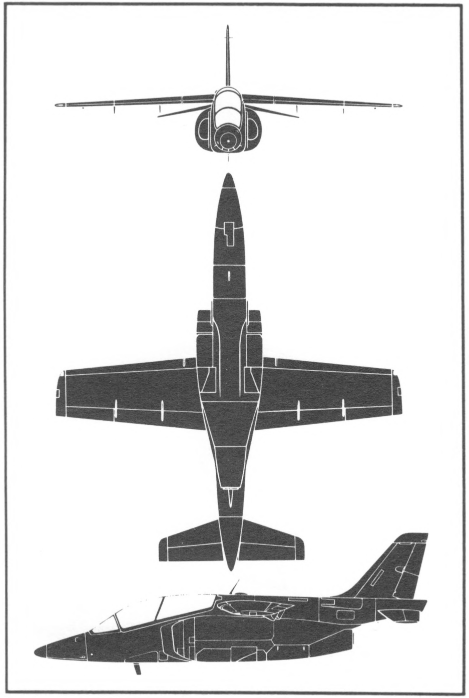
A two-seat basic and advanced trainer attack aircraft built by Aero Industry Development Center in Taiwan, the AT-3 first flew in September 1980. Over 60 production AT-3As were ordered for the Chinese Nationalist Air Force and production was completed in 1990. The AT-3 has a maximum speed of 898km/h and an endurance of 3hr 12min. A weapons bay is situated under the rear cockpit, which can accommodate various stores including machine gun packs. There is one external stores station under the fuselage and two under each wing. A total of 20 AT-3As have been modified as AT-3B close support aircraft. *Country of origin:* Taiwan.

Confusion: Aviojet

FMA IA 63 Pampa

Power: 1 × TFE 731 turbofan *Span:* 9.69m *Length:* 10.93m



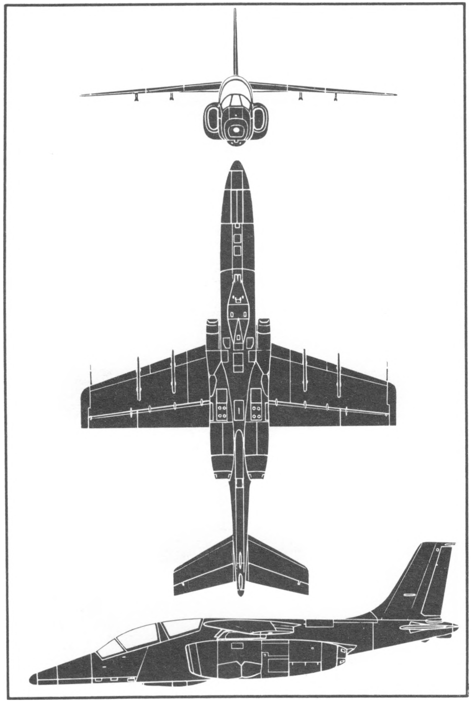


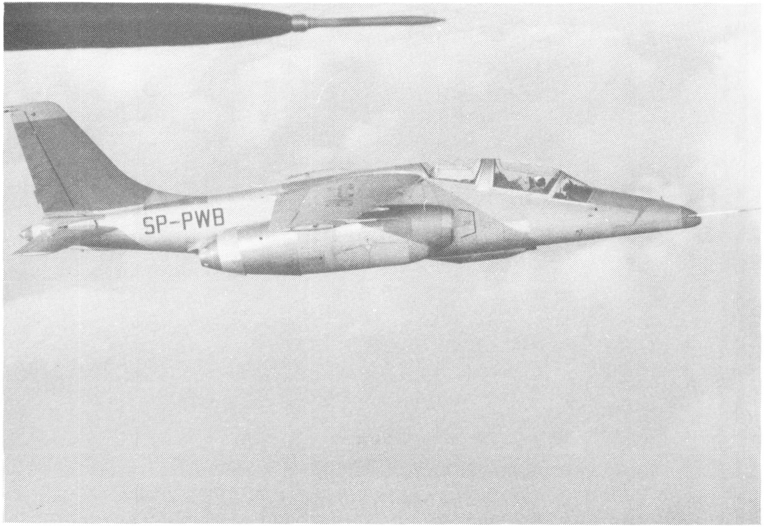
The IA 63 Pampa two-seat tandem basic/advanced jet trainer was ordered for the Argentine Air Force to replace the MS 760 Paris III. First flown in October 1984, deliveries of 18 IA 63s began in 1988. The German firm of Dornier provided major technical assistance in the development phase and the IA 63 bears a close resemblance to a straight-wing Dassault-Breguet/Dornier Alpha Jet. Top speed of the IA 63 at sea level is 740km/h, maximum rate of climb 1,620m/min and service ceiling 12,900m. The Pampa 2000 is a version proposed for USAF/USN trainer competition. *Country of origin:* Argentina.

PZL I-22 Iryda

Confusion: Pampa

Power: 1 × SO-3W22 turbojet *Span:* 9.6m *Length:* 13.22m



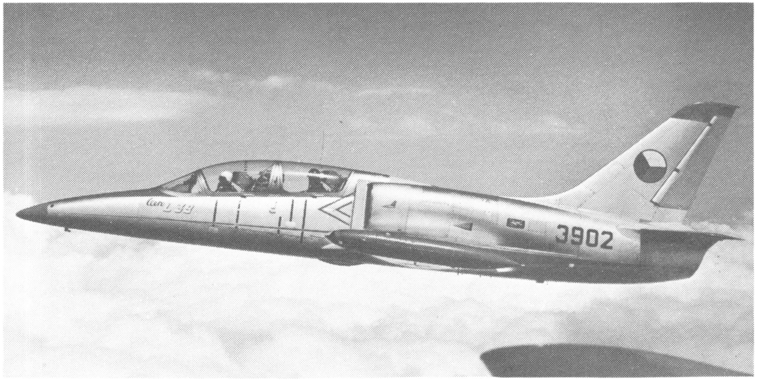


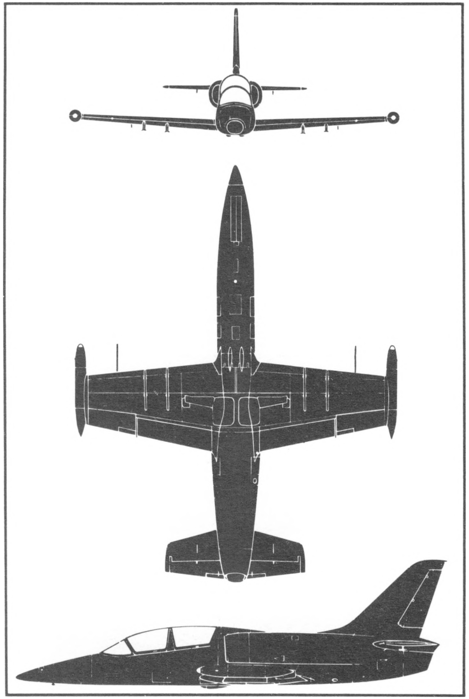
A twin-engined shoulder wing trainer/light attack aircraft, the two-seat I-22 Iryda (Irydium) first flew in March 1985. Capable of undertaking a variety of roles the I-22 carries one 23mm twin-barrel cannon in an underfuselage pack plus underwing pylons for bombs, rockets or fuel tanks. Maximum speed at sea level is 915km/h and range, on internal fuel, 1,670km. *Country of origin:* Poland.

Confusion: Galeb, Delfin

Aero L-39 Albatros

Power: 1 × IA-25TL turbofan *Span:* 9.11m *Length:* 12.11m



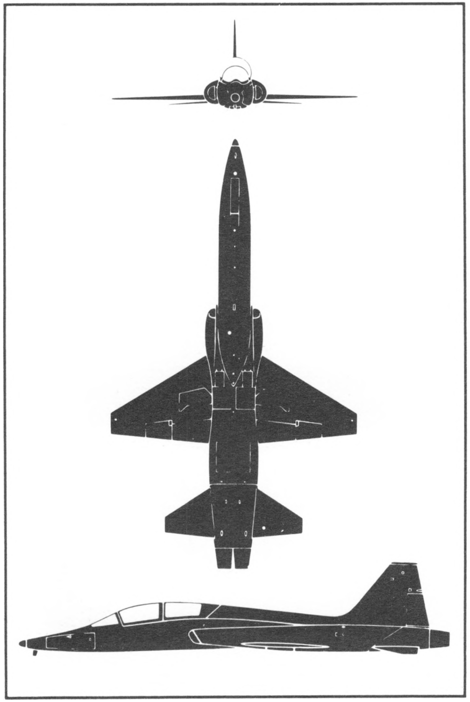


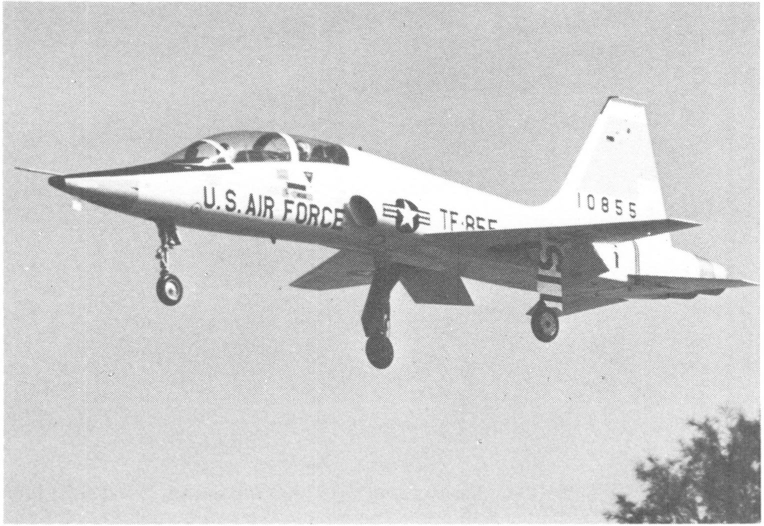
Successor to the L-29 Delfin, the two-seat L-39C Albatros advanced trainer has engine intakes repositioned in the upper fuselage sides behind the cockpit. The L-39ZO and L-39ZA, have four underwing pylons and the latter a 23mm cannon in a pod mounted on the belly below the cockpit. The L-39V is a single-seat Albatros equipped with a target-towing winch for anti-aircraft artillery practice. The Albatros has a top speed of 610km/h. Deliveries began in 1973 and production (including exports) has already totalled well over 2,300 units. An improved and uprated version is designated L-39MS. *Country of origin:* Czechoslovakia. *Silhouette and picture:* L-39.

Northrop T-38A Talon

Confusion: F-5, Starfighter, Hornet

Power: 2 × J85 reheated turbojets *Span:* 7.7m *Length:* 14.13m



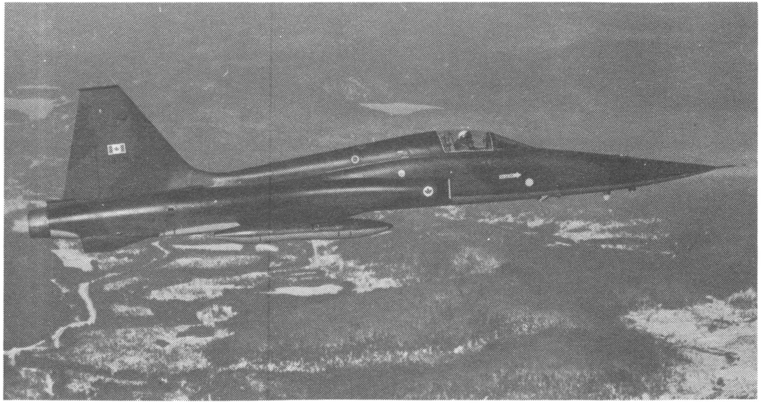


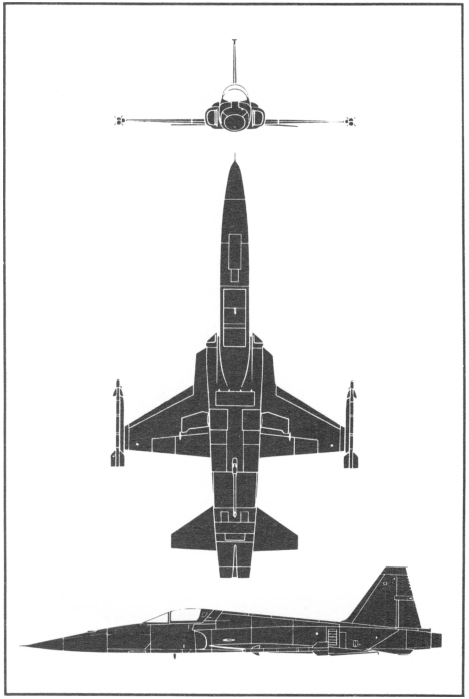
Very similar in outline to the Northrop F-5, the two-seat T-38A Talon was in fact a separate development with a different structure. The Talon was the first supersonic advanced trainer to be put into production, entering service with the USAF in 1961. A total of 1,187 Talons were built before production finished in 1972. The Talon has a maximum range of 1,759km. *Country of origin:* USA.

Confusion: Talon, Starfighter, Hornet

Northrop F-5

Power: 2 × J85 reheated turbojets *Span:* 8.13m *Length:* 14.68m



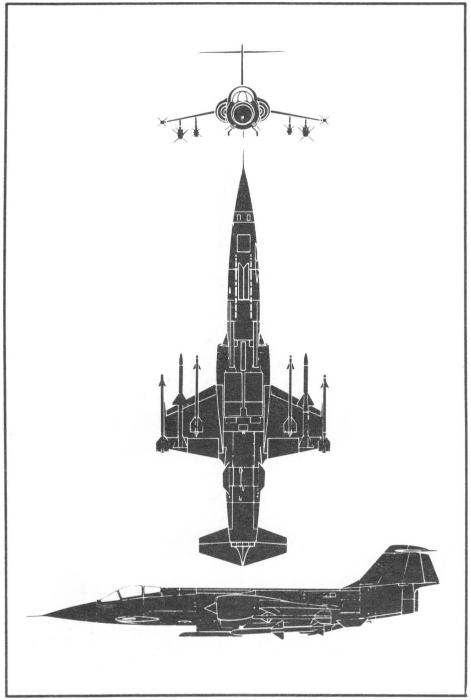


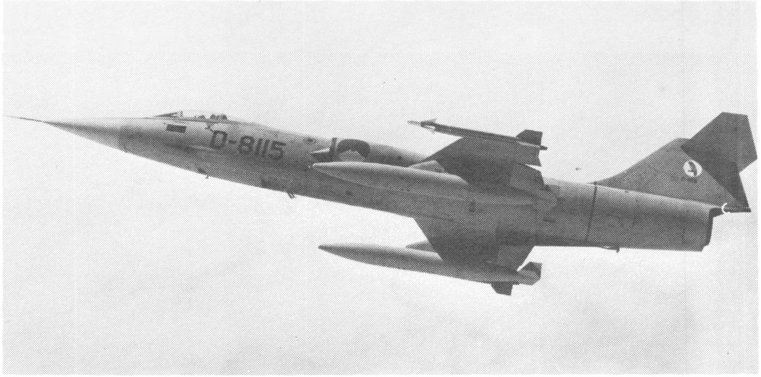
The most successful lightweight jet combat aircraft ever built, the Northrop F-5 flew for the first time in 1959. It is used for interception, ground attack and reconnaissance. The F-5A is a single-seater with four wing pylons and two 20mm nose guns, the RF-5A is the reconnaissance variant and F-5B is a two-seat trainer. The F-5E Tiger II air-superiority fighter has increased power, improved nav-attack system and a modified wing with leading-edge root extensions. Tiger II has a maximum speed of 1,732km/h and a range of 3,175km. The reconnaissance version of Tiger II is designated RF-5E Tiger Eye (with extended nose) and the two-seat version F-5F. *Country of origin:* USA. *Silhouette:* F-5E. *Picture:* CF-5A.

Lockheed F-104 Starfighter

Confusion: F-5, Hornet

Power: 1 × J79 reheated turbojet *Span:* 6.68m *Length:* 16.69m



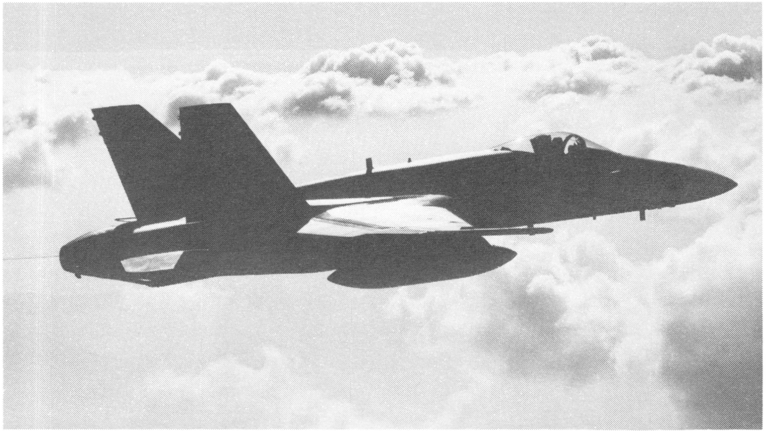


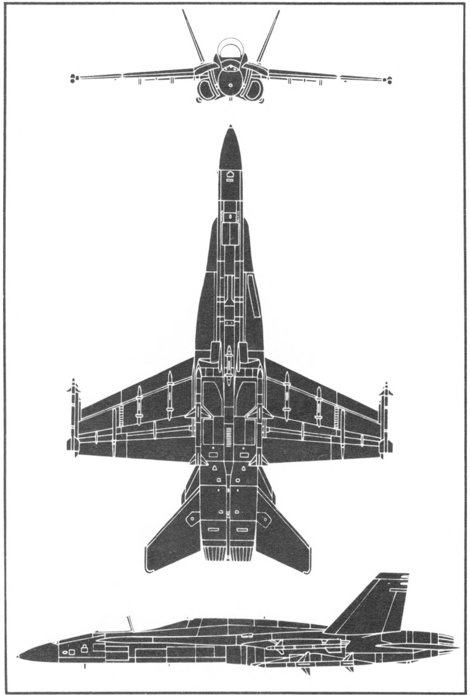
A single-seat all-weather tactical strike and reconnaissance fighter, the Lockheed F-104 Starfighter first flew in 1954 and was built in very large numbers. Unlike its swept-wing contemporaries, the Starfighter was designed with a very thin, straight wing. Air-to-air missiles or auxiliary fuel tanks can be carried on the wingtips, while a variety of missiles, bombs or fuel tanks can be accommodated on four underwing pylons. Standard fuselage-mounted armament is a 20mm rotary cannon. Top speed at altitude is 2,124km/h or Mach 2. Main service variant is the multi-role F-104G. The F-104S, licence-built in Italy, carries two Sparrow medium-range air-to-air missiles. The tandem two-seat trainer version is designated TF-104G. *Country of origin:* USA. *Silhouette:* F-104S. *Picture:* F-104G.

Confusion: Starfighter, Tiger II

McDonnell Douglas/Northrop F/A-18A Hornet

Power: 2 × F404 reheated turbofans *Span:* 11.43m *Length:* 17.07m

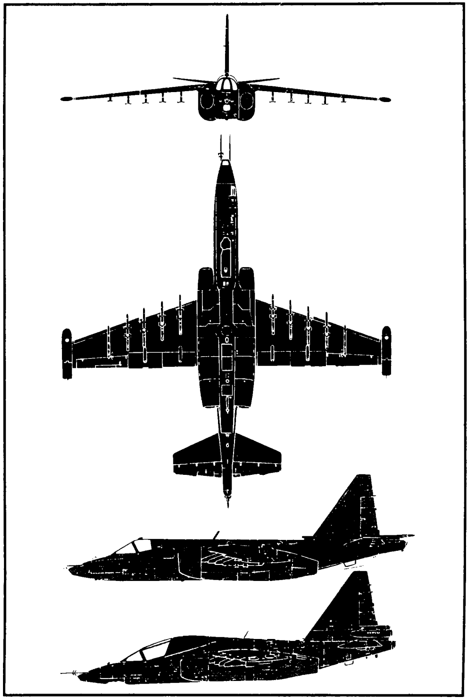


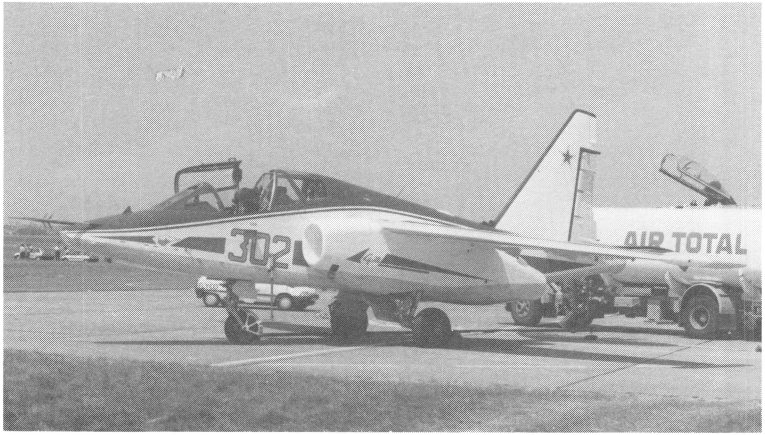


Based on a Northrop private-venture design, the F-18 Hornet is a single-seat carrierborne air-superiority fighter with Mach 1.8 performance and high manoeuvrability. McDonnell Douglas is the prime contractor for the Navy and Marine Corps versions F/A-18A fighter, A-18 attack aircraft and TF/A-18A two-seat trainer, while Northrop is a co-producer. In fighter form the Hornet carries a six-barrel 20mm cannon plus air-to-air missiles and other stores on nine wing positions, including the wingtips. The Canadian version is known as CF-18 and that for Spain, EF-18. Later versions include F/A-18C, F/A-18D and F/A-18C/D Night Attack. *Country of origin:* USA. *Silhouette:* F/A-18A. *Picture:* CF-18.

Su-25 ‘Frogfoot’ *Confusion:* Citation, Magister

Power: 2 × R-195 turbojets *Span:* 14.36m *Length:* 15.53m

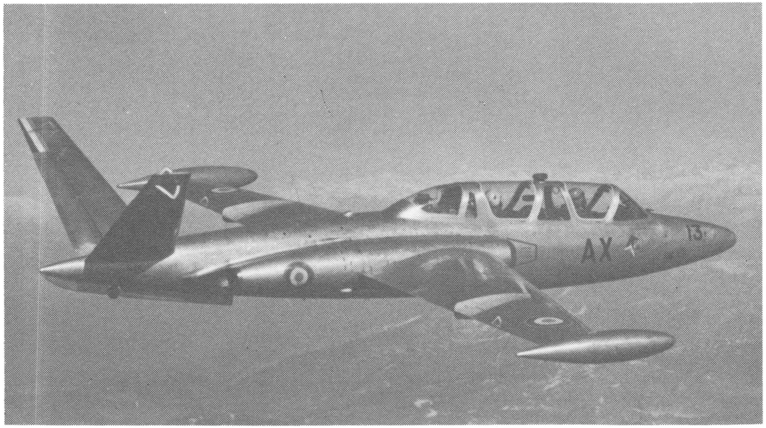


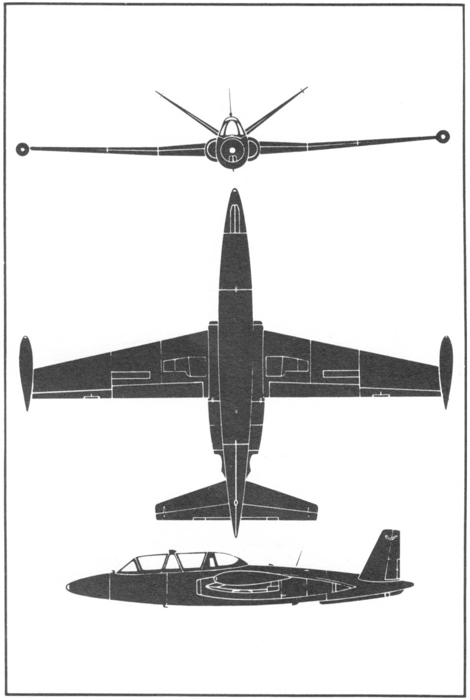


Produced as a single-seat ground attack and two-seat trainer aircraft, the Su-25 code-named ‘Frogfoot’ was first flown in February 1975 and saw service in Afghanistan. Maximum speed is 975km/h and armament consists of a twin-barrel 30mm gun and a variety of missiles, bombs, cluster weapons, rockets and additional guns on 10 wing pylons. Variants are: Su-25/Su-28 (‘Frogfoot-A’) single-seater attack; Su-25B (‘Frogfoot-B’) two-seater; Su-25UT/Su-28 (‘Frogfoot B’) without weapons; Su-25UTG as UT but fitted with carrier deck hook; Su-25T with humped back for all-weather anti-tank attack; Su-25BM for target towing. *Country of origin:* Russia. *Main silhouette:* Su-25; *lower side view:* Su-25T. *Picture:* Su-28.

Aerospatiale Magister

Power: 2 × Marboré turbojets *Span:* 11.4m *Length:* 10.06m



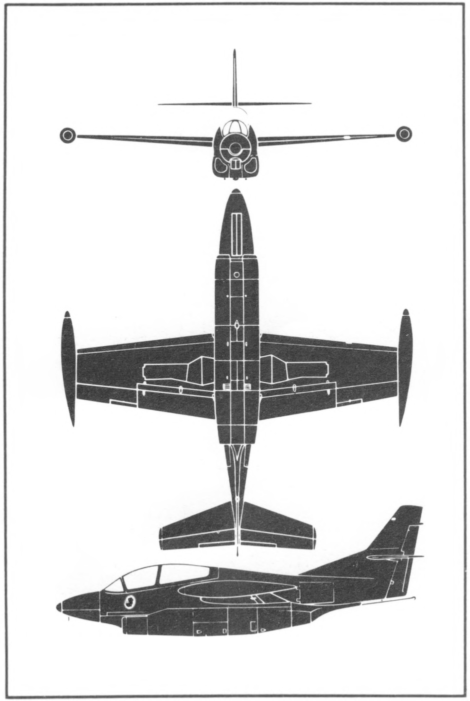


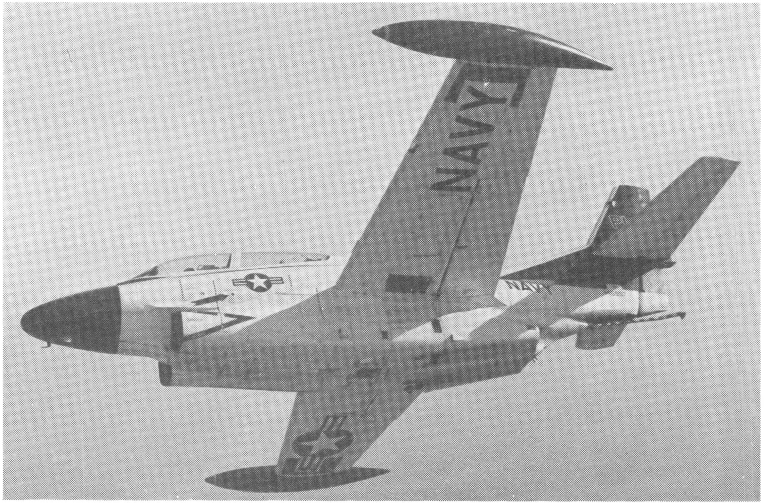
Nearly 1,000 CM170 Magister two-seat basic trainers were built before production ceased. First flown in 1951, the Magister has a distinctive layout, with high-aspect-ratio wings and V-tail. The CM170-2 is known as the Super Magister. Top speed is 700km/h and endurance 2hr 40min. Two machine guns are mounted in the nose, and rockets, bombs or missiles can be carried under the wings. The Magister has been used as a light ground attack aircraft, serving with the Israeli Air Force in the Middle East. A naval version known as the Zephyr was produced for shipboard carrier familiarisation duties by the French Navy. *Country of origin:* France. *Silhouette and picture:* Magister.

Rockwell International T-2 Buckeye

Confusion: Iskra

Power: 2 × J60 or J85 turbojets *Span:* 11.62m *Length:* 11.67m



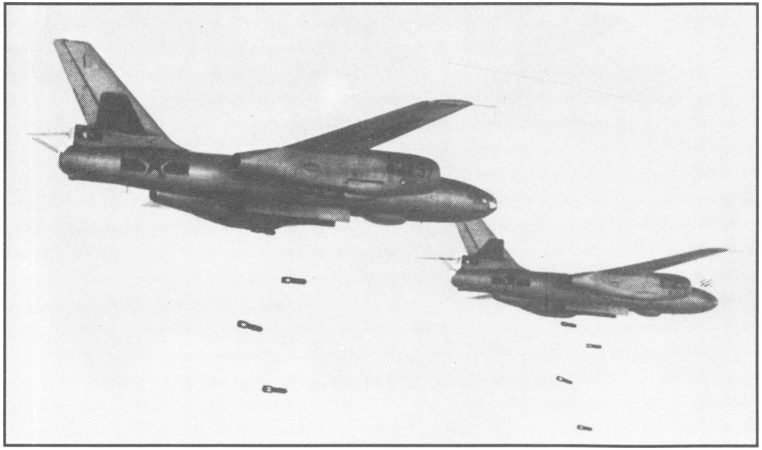


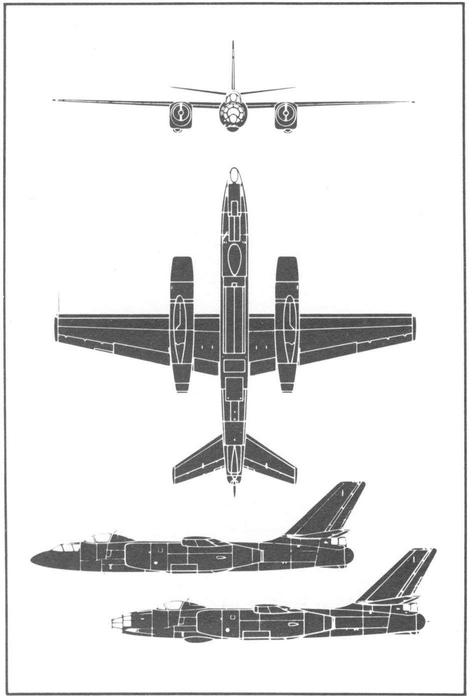
A shipborne basic trainer/attack aircraft, the T-2 Buckeye first flew, as the T2J-1 (T-2A) with one J34 engine, in 1958. The T-2B has two J60 engines and the T-2C and D two J85s. The wing was based on that of the early FJ-1 Fury fighter. Armament is carried on underwing stations. Maximum speed is 840km/h and range 1,685km. Buckeyes were exported to two countries: Venezuela (24 examples) and Greece (40). *Country of origin:* USA. *Silhouette and picture:* T-2C.

Confusion: Canberra

Ilyushin Il-28 'Beagle'

Power: 2 × VK-1 turbojets *Span:* 21.45m *Length:* 17.65m



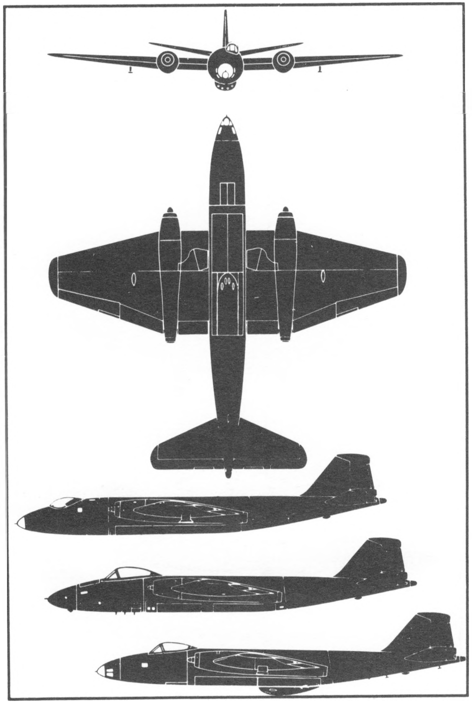


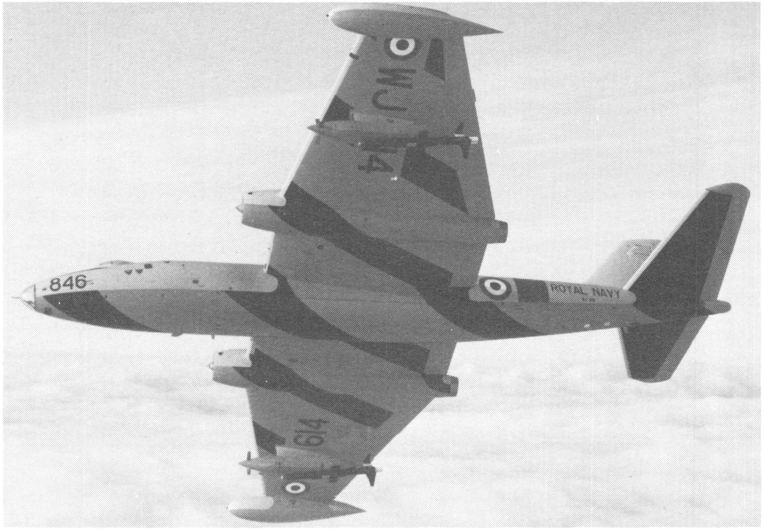
Although it is nearly 40 years since the Il-28 bomber, code-named 'Beagle', entered service, it is still in use with various air forces in Africa, Asia and South-east Asia and in small numbers in eastern Europe. The trainer version, the Il-28U, has a second, lower cockpit and is code-named 'Mascot'. In bomber form the 'Beagle' carries 1,000kg of bombs internally and two 23mm cannon in the tail. Maximum speed is 900km/h and maximum range 2,180km. A Chinese-built version is known as the Harbin H-5. *Country of origin:* Russia. *Main silhouette:* Il-28; *upper side view:* Il-28U. *Picture:* H-5.

BAe Canberra

Confusion: 'Beagle', B-57

Power: 2 × Avon turbojets *Span:* 19.5m *Length:* 19.96m



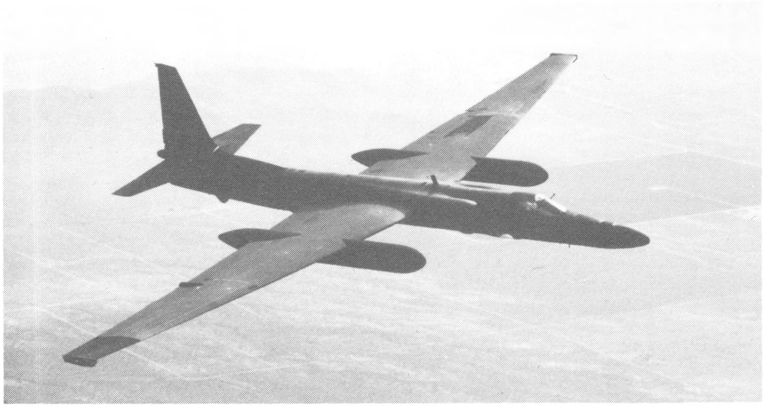


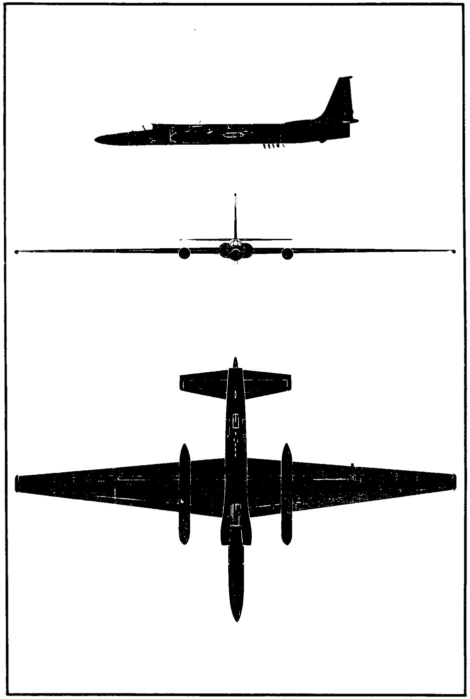
Still in widespread use 40 years after its first flight, the Canberra is used for tactical bombing, reconnaissance, training, electronic warfare and target towing. Production totalled 1,461, including examples licence-built in the USA (as the B-57) and Australia. Later versions have a raised offset cockpit. Maximum speed is 930km/h and range 6,100km. *Country of origin:* UK. *Main silhouette:* B(I)8; *top side view:* B6; *middle side view:* PR9. *Picture:* TT18.

Confusion: —

Lockheed U-2/TR-1

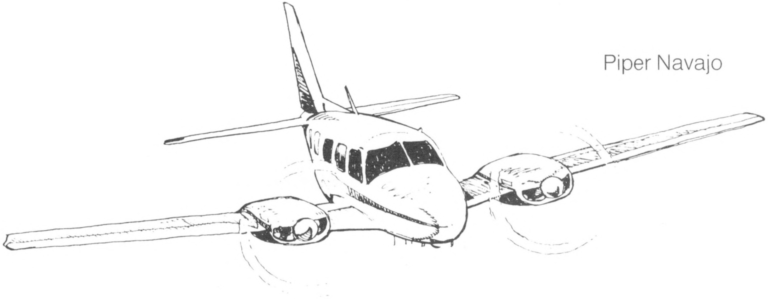
Power: 1 × J57 or 1 × J75 turbojet *Span:* 24.38m *Length:* 15.11m



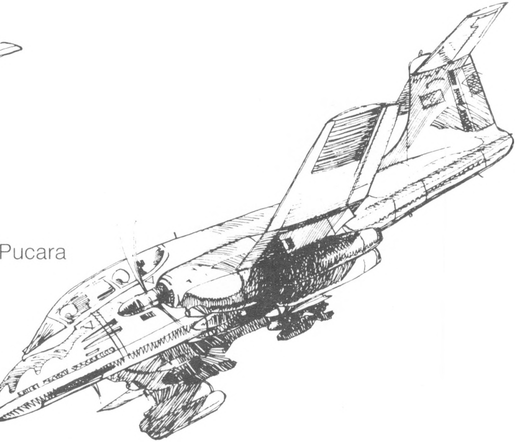


A high-altitude special-purpose reconnaissance aircraft, the single-engined U-2 came to the world's attention in 1960 when one was shot down over the Soviet Union. A very-high-aspect-ratio wing gave the U-2 a service ceiling of about 24,384m; cruising speed is 740km/h and endurance over eight hours. The production line was reopened to turn out 12 much modified U-2s (U-2R) and 35 aircraft with improved sensors and designated TR-1A and B, the B being a trainer with an additional cockpit. One example was supplied to NASA as the ER-2. *Country of origin:* USA. *Silhouette and picture:* TR-1A.

Twin propellers, low/mid wing

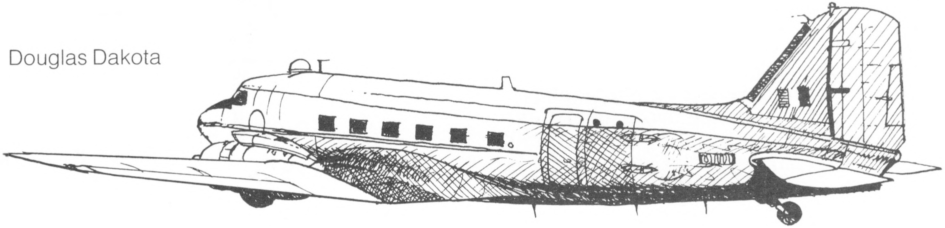


Piper Navajo



FMA IA 58 Pucara

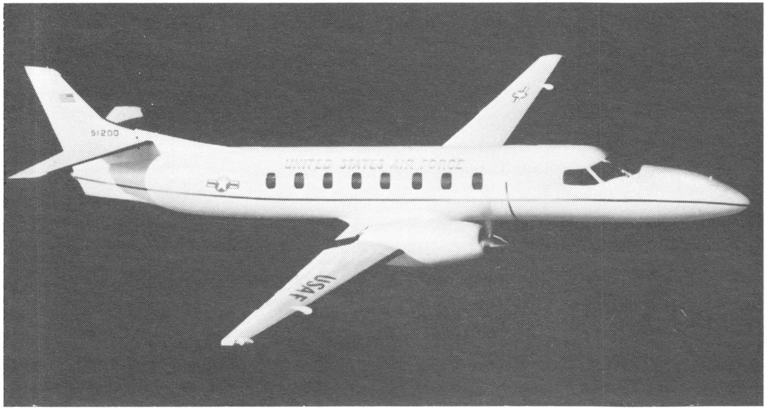
Douglas Dakota

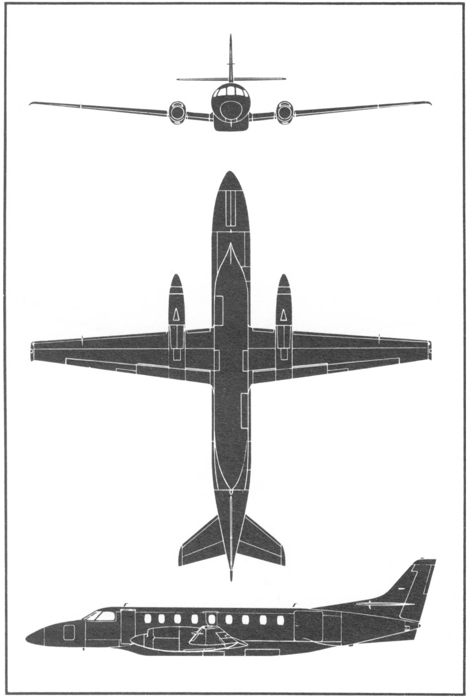


Confusion: ST-27

Fairchild Metro

Power: 2 × TPE331 turboprops *Span:* 17.37m *Length:* 18.09m



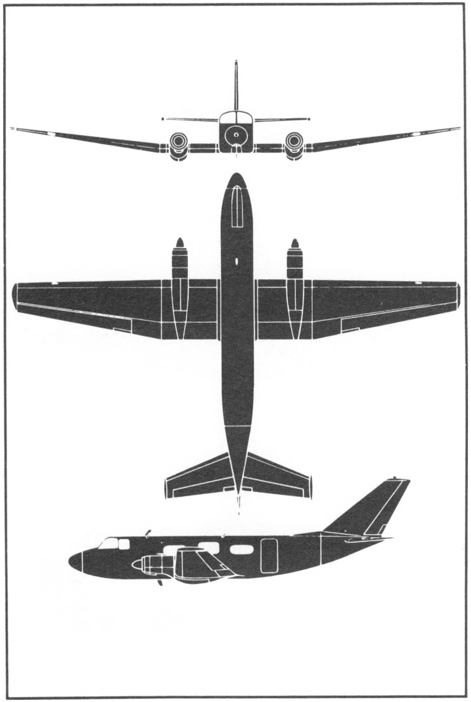


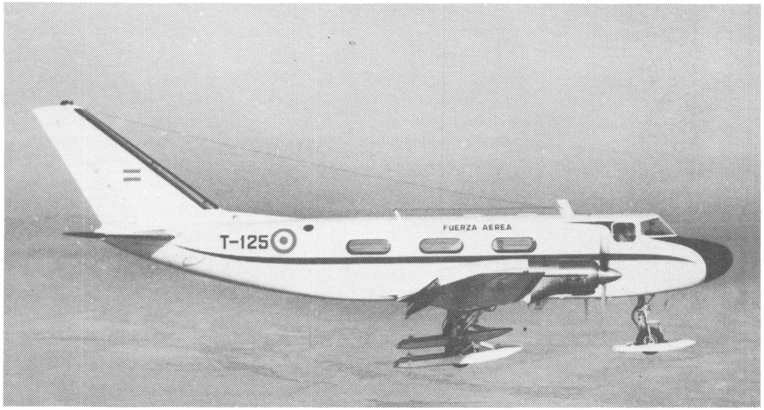
Developed from the Merlin, the Metro is a 20-passenger commuter airliner with a range of 804km. The Metro II has deeper windows than the Metro and both versions are characterised by long noses. An executive transport version of the Metro II is designated Merlin IVA and has seating for 12/15 passengers. The Metro III and IIIA have a new, longer-span wing, while the IIIA also has PT6A engines. The III has a range of 1,149km. Introduced in 1981, the Metro IIIC incorporates the wing introduced on the Metro III. Current versions are Metro 23 and Merlin 23 business aircraft. The cargo version of the Metro III is called Expediter while the Merlin IVC is a corporate version. C-26A is a variant with the US Air National Guard. *Country of origin:* USA. *Silhouette:* Metro 23EF. *Picture:* Merlin C-26A.

FMA IA 50 Guarani

Confusion: Metro/Merlin IV

Power: 2 × Bastan turboprops *Span:* 19.59m *Length:* 15.3m



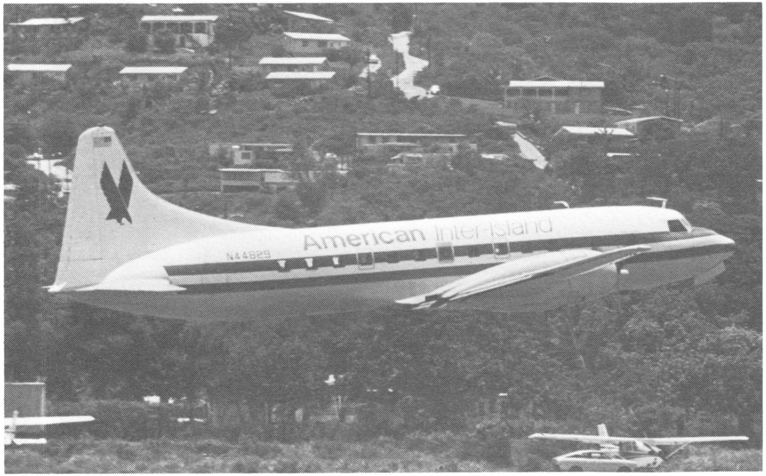


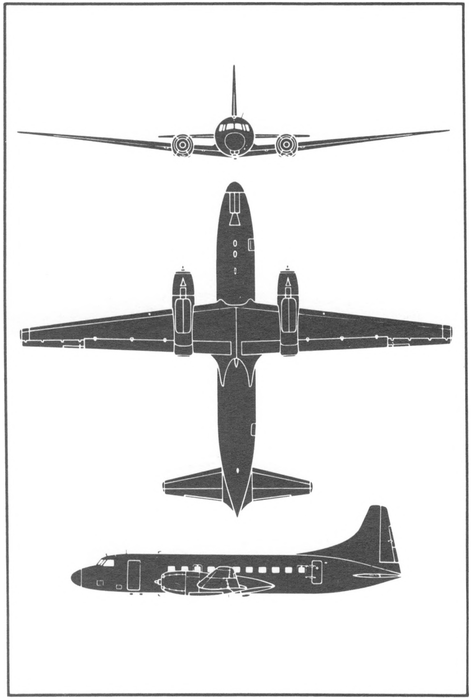
Developed from the Huanquero, the IA 50 Guarani seats up to 15 passengers or can be used for navigation training or air ambulance work. Compared with the Huanquero, the Guarani has a swept single fin. Both types can carry tip tanks. Cruising speed is 450km/h and range 1,995km. First flown as the Guarani I, embodying 20 per cent of the structural components of the Huanquero, this type was developed into the Guarani II, the definitive standard. The Guarani II features more powerful engines, de-icing equipment, a single swept fin and rudder in place of the Guarani I's twin-fin arrangement, and a shorter rear fuselage to save weight. The type was phased out of production in 1973. *Country of origin:* Argentina. *Silhouette and picture:* Guarani II.

Confusion: DC-3, Guarani, 4-0-4, Crate

Convair CV-240/340/440 Metropolitan

Power: 2 × R-2800 piston engines *Span:* 32.12m *Length:* 24.14m



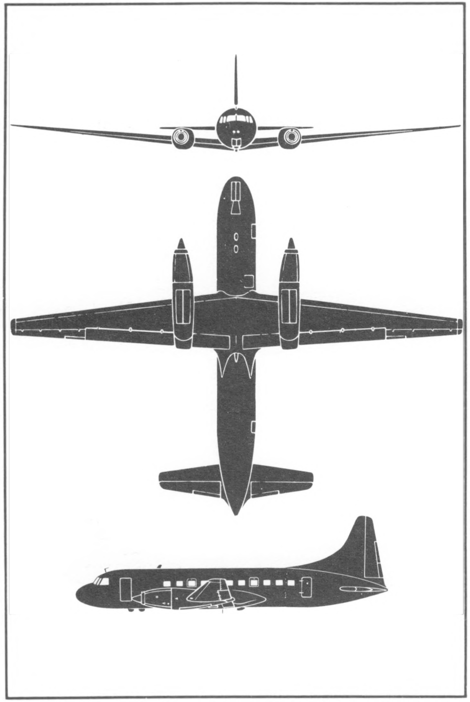


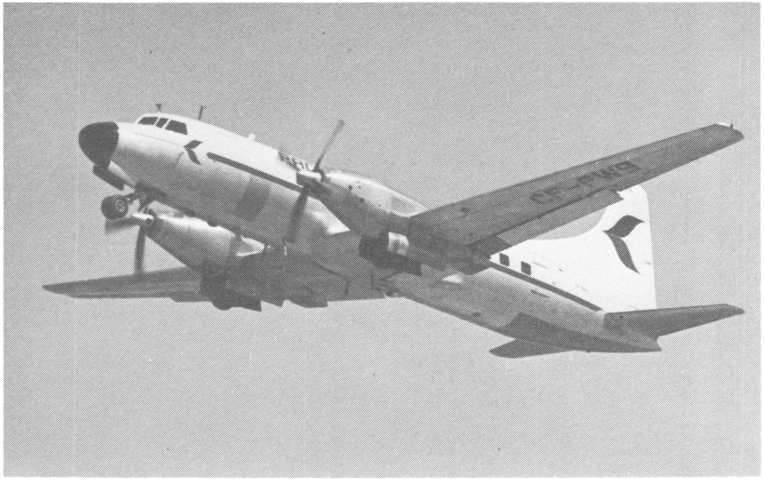
Originally built as the 40-seat Convair 240, the Metropolitan was developed into a number of variants. The 340 had a lengthened fuselage seating 44 passengers, while the 440 ultimately had accommodation for up to 52. Versions were also produced for the US Air Force and US Navy for air ambulance work, transport, crew training and ECM training. Altogether 1,081 240/340/440s were completed. The 440 cruises at 465km/h for 2,092km. *Country of origin:* USA. *Silhouette:* CV-340. *Picture:* CV-440.

Convair 540/580/600/640

Confusion: Convair 440, Guarani, 4-0-4, Crate

Power: 2 × Allison 501 or 2 × Dart turboprops *Span:* 32.12m *Length:* 24.14m



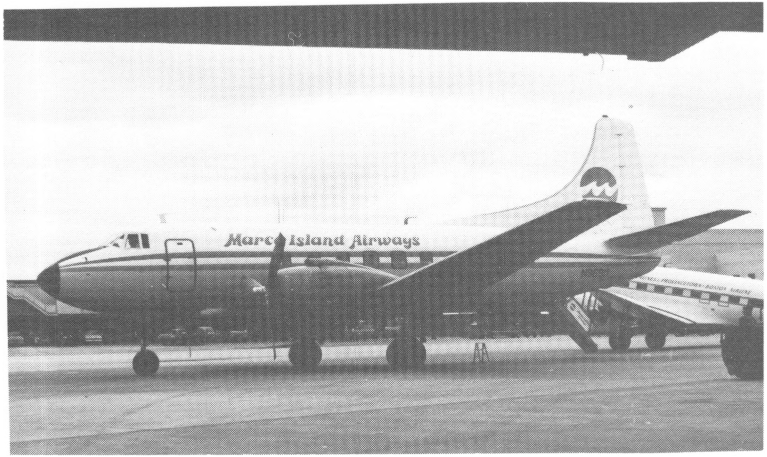


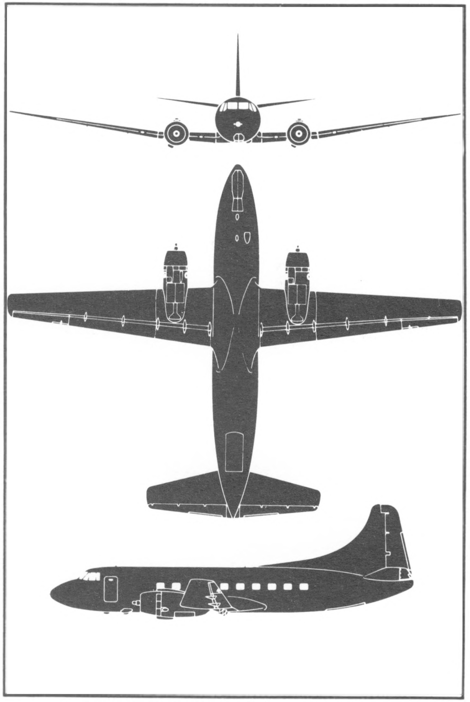
The Convair 340 and 440 both proved capable of conversion to turboprop power. Pacific Automotive converted more than 115 to Allison 501 turboprops (CV-580), while kits were produced for refitting 340/440s with Rolls-Royce Darts to produce the CV-600/640. The 640 with Darts can carry 56 passengers for 1,975km at a speed of 482km/h. Some 90 580/600 and 640 aircraft remain in use. *Country of origin:* USA. *Silhouette and picture:* CV-640.

Confusion: Convair 340/640

Martin 4-0-4

Power: 2 × R2800 piston engines *Span:* 28.44m *Length:* 22.75m



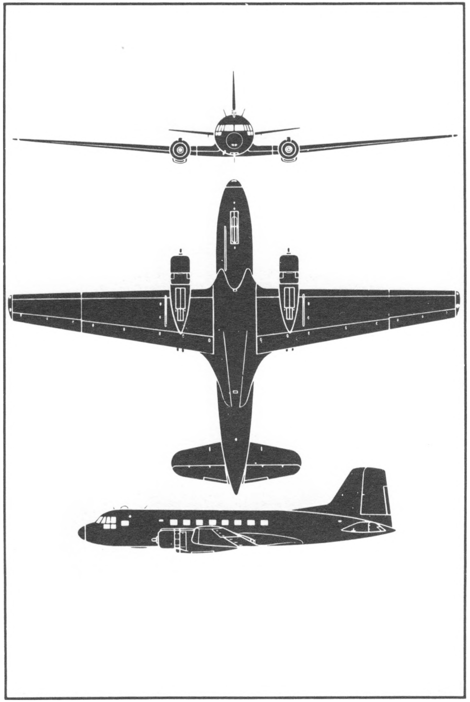


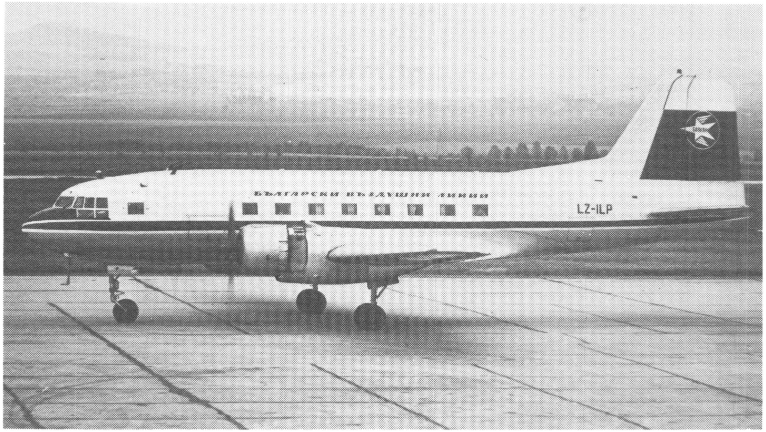
Developed from the Martin 2-0-2, which first flew in 1946, the 4-0-4 pressurised twin-engined transport entered service in 1951. The type was a rival to the Convair 340/440, which it resembles in outline. Over one hundred 4-0-4s were built and a number remain in use in the USA and South America. A total of 40 passengers are carried, cruising speed is 448km/h and range is 1,730km. Other performance figures include a maximum speed of 500km/h and service ceiling of 8,845m. *Country of origin:* USA.

Ilyushin Il-14 'Crate'

Confusion: DC-3, Commando, Convair 340/640, 4-0-4

Power: 2 × Ash-82 piston engines *Span:* 31.69m *Length:* 22.3m



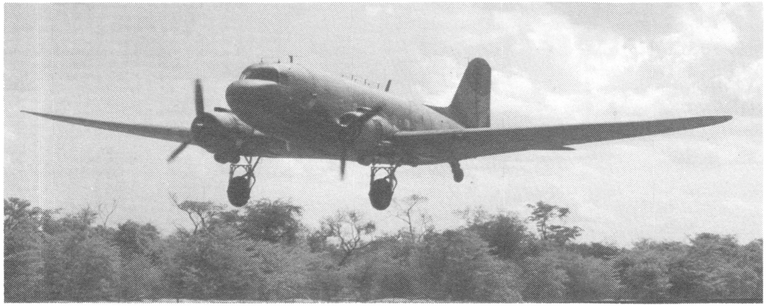


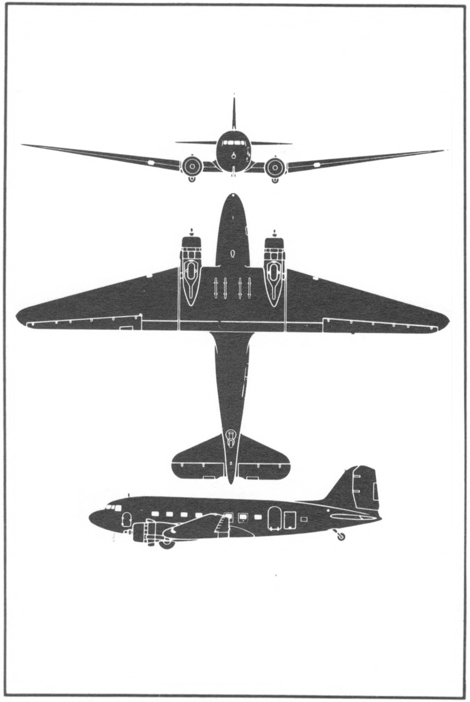
Some 3,600 Il-14 'Crate' transports were built for both civil and military use. The civil version seats 18/26 passengers, while the military 'Crate' has port-side double freight doors. A stretched version, the Il-14M, carries 24/28 passengers. A line in Czechoslovakia produced a 32-passenger variant, the Avia 14-32, the freighter 14T and the photographic survey 14FG. In 1960 the Czechs produced a pressurised 42-passenger 'Crate' with circular windows known as 14-42. The 14M has a cruising speed of 310km/h and a range of 1,304km. About 150 'Crates' remain in use. *Country of origin:* Russia. *Silhouette and picture:* Il-14M.

Confusion: 'Crate', Commando, Azor

Douglas DC-3/Dakota

Power: 2 × R-1830 piston engines *Span:* 28.96m *Length:* 19.63m



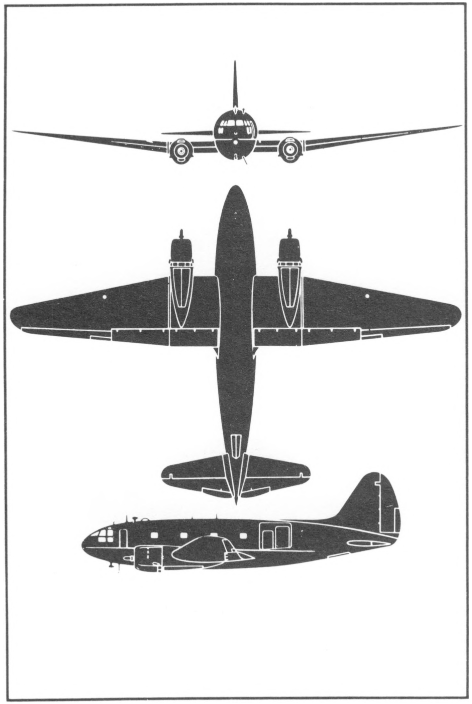


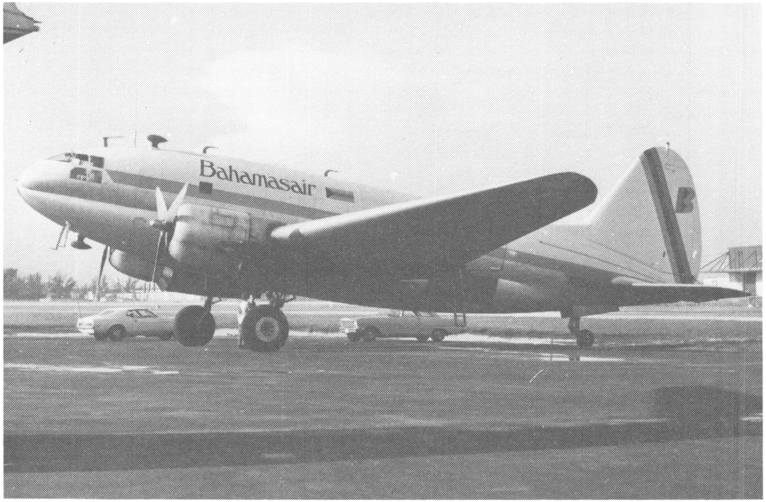
Probably the most famous of all airliners/military transports, the DC-3/Dakota first flew in 1935 and nearly 13,000 were built, including some 2,000 in Russia and Japan. Several hundred DC-3/Dakotas are still in use and there have been many variants, including turboprop developments. The basic DC-3 seats up to 36 passengers and cruises at 312km/h for 2,430km. The C-47 Dakota military version is in use in over 40 countries. A new turboprop conversion of the ageless DC-3 is now offered as the Schafer/AMI DC-3-65TP powered by two PT6A engines. A further conversion with PT6s is the Basler Turbo-67DC-3. *Country of origin:* USA. *Silhouette:* DC-3. *Picture:* C-47.

Curtiss C-46 Commando

Confusion: DC-3, 'Crate', Azor, Atlantic

Power: 2 × R-2800 piston engines *Span:* 32.92m *Length:* 23.26m



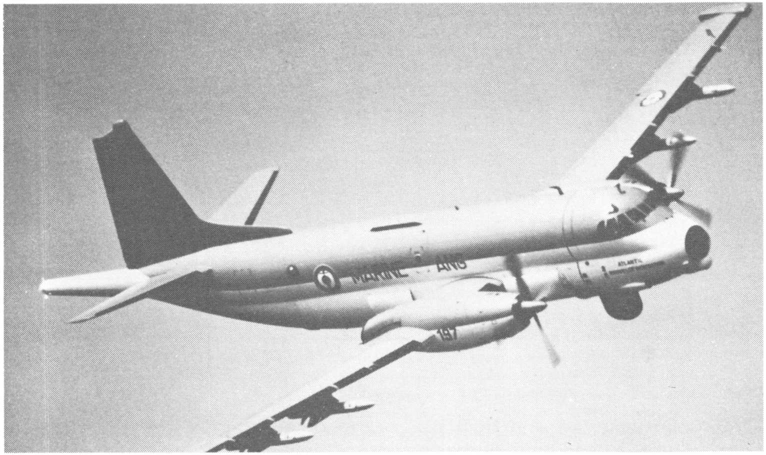


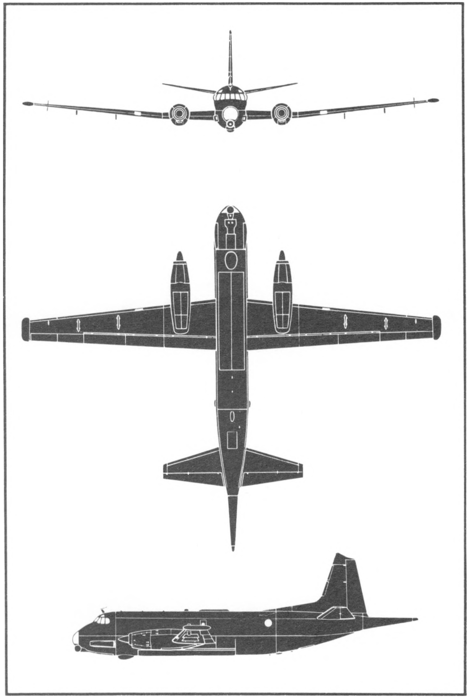
Like the ubiquitous DC-3/Dakota, the Curtiss Commando twin radial-engined transport has remained in service continuously since the Second World War. The type is in civil and military use, carrying either passengers or freight. Passenger versions can carry up to 62 passengers for 1,880km at a cruising speed of 301km/h. A total of 3,180 Commandos were built, of which about 30 are still operating, particularly in the Caribbean and South America. *Country of origin:* USA.

Confusion: Commando, ‘Crate’, Neptune

Dassault-Breguet Atlantic

Power: 2 × Tyne turboprops *Span:* 36.3m *Length:* 31.75m



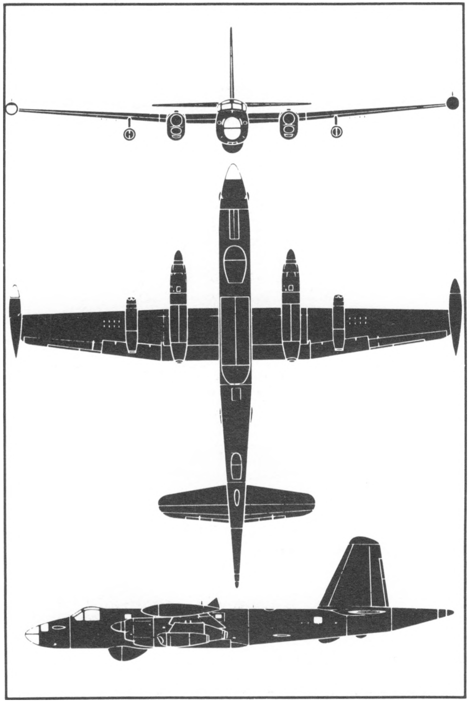


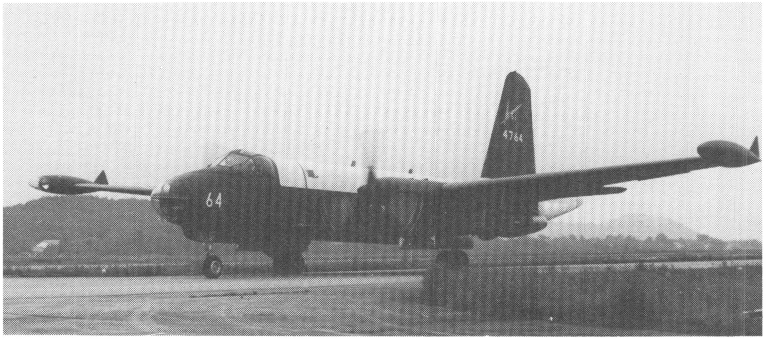
A multi-national European product, the Atlantic long-range maritime patrol aircraft is in service in France, Germany, Italy, the Netherlands and Pakistan. First flown in 1961, the Atlantic has a 12-man crew and can cruise at 320km/h for 18hr. The weapon load of acoustic torpedoes, depth charges or mines is carried internally. An updated version is the Atlantique 2, (ATL2), previously known as the Atlantic NG (*Nouvelle Génération*), with improved systems and structure, and capable of carrying Exocet missiles in the weapons bay. The French Navy has a requirement for 42 Atlantique 2s. *Country of origin:* France. *Silhouette and picture:* Atlantic 2.

Kawasaki/Lockheed P-2 Neptune

Confusion: Atlantic

Power: 2 × T64 turboprops plus 2 × J3 turbojets *Span:* 29.78m *Length:* 29.23m



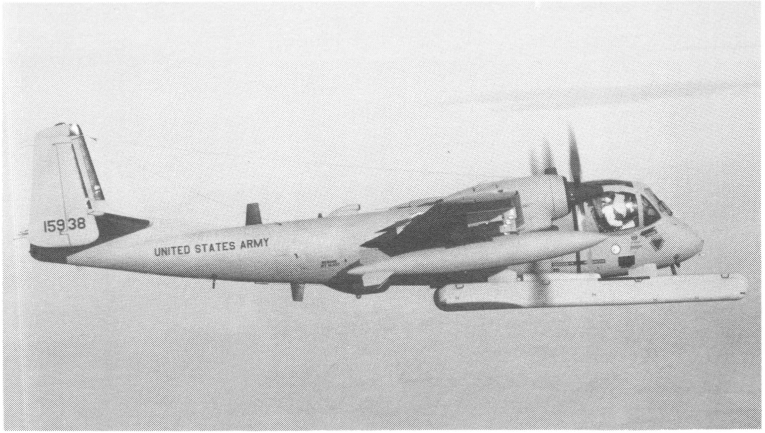


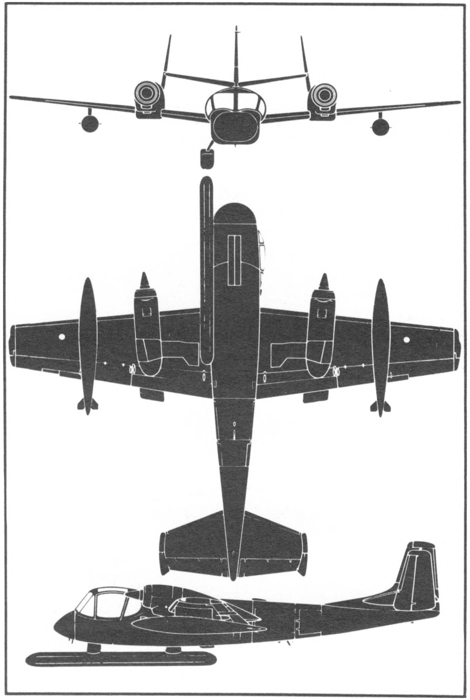
Originally designed and built by Lockheed in America, the P-2 Neptune maritime patrol and anti-submarine aircraft was subsequently manufactured under licence in Japan. After completing a number of P-2H Neptunes, Kawasaki developed a longer, higher-powered and longer-range version, the P-2J. Carrying 12 crew, the P-2J cruises at 370km/h and has a range of 4,450km. Up to 3,630kg of weapons can be carried in the internal bomb bay, while rocket projectiles may be fitted under the wings. The P-2J's operational equipment is known to be comparable in standard to that carried by the P-3 Orion and to include APS-80J search radar, exhaust-gas detector, and magnetic anomaly detector (MAD) in the tail boom. A total of four P-2Js have been converted to UP-2J target tugs. *Countries of origin:* Japan/USA. *Silhouette and picture:* P-2J.

Confusion: —

Grumman OV-1/RV-1 Mohawk

Power: 2 × T53 turboprops *Span:* 14.63m *Length:* 12.50m



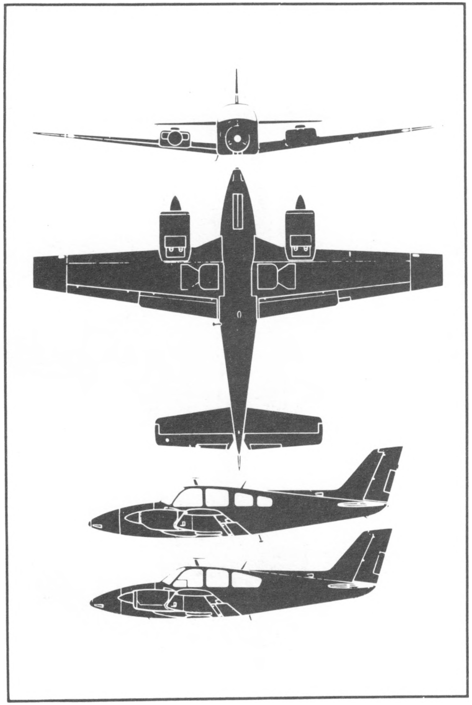


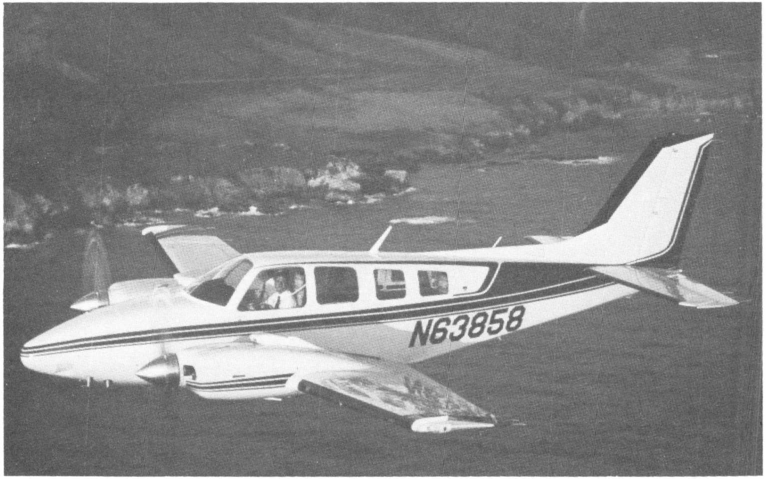
Developed as a US Army battlefield surveillance aircraft, the OV-1 Mohawk carries a wide range of cameras and electronic sensors and can operate from small, rough sites. OV-1A has cameras, OV-1B sideways-looking radar (SLAR), OV-1C cameras and infra-red sensors and OV-1D cameras and sideways-looking radar or infra-red. The RV-1D is a conversion for electronic intelligence work. The SLAR is mounted in a long, rectangular under-fuselage pod which extends well forward of the nose. Large auxiliary fuel tanks are carried under the wings. The crew of two are seated side by side and maximum speed is 491km/h. *Country of origin:* USA. *Silhouette:* OV-1B. *Picture:* OV-1D.

Beechcraft Baron

Confusion: Aero 145, Navajo, Apache

Power: 2 × Continental piston engines *Span:* 11.53m *Length:* 9.09m



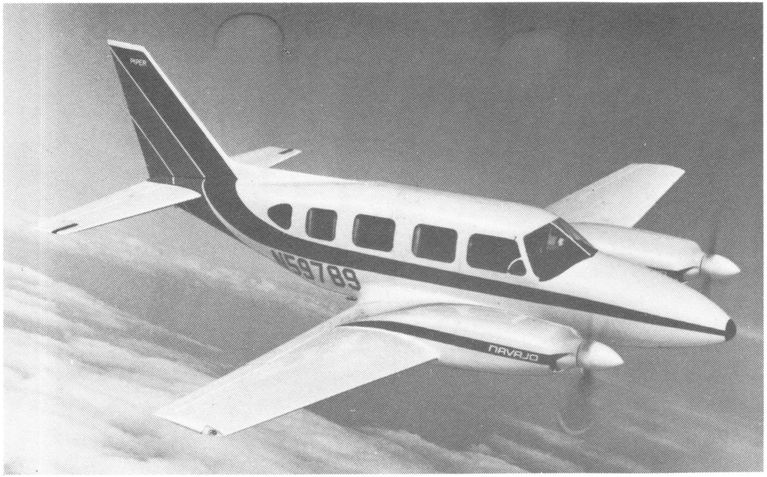


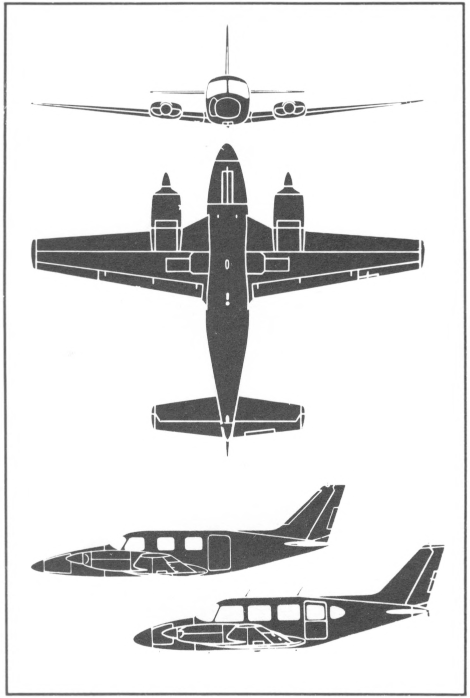
The B55 Baron four-passenger light transport was developed from the D95 Travel Air, which was itself a scaled-down Twin Bonanza. First flown in 1960, the Baron has been steadily updated over the years and has appeared under a variety of designations: A55, B55, C55, D55, E55, Turbo Baron and Baron 58/58TC. A pressurised variant is called the Baron 58P; over 2,300 Barons of all types have been delivered. Maximum cruising speed is 370km/h and range 1,950km. *Country of origin:* USA. *Main silhouette:* D55; *upper side view:* Baron 58. *Picture:* Baron 58.

Confusion: Apache, Baron

Piper PA-31 Navajo

Power: 2 × Lycoming piston engines *Span:* 12.4m *Length:* (-31C): 9.94m



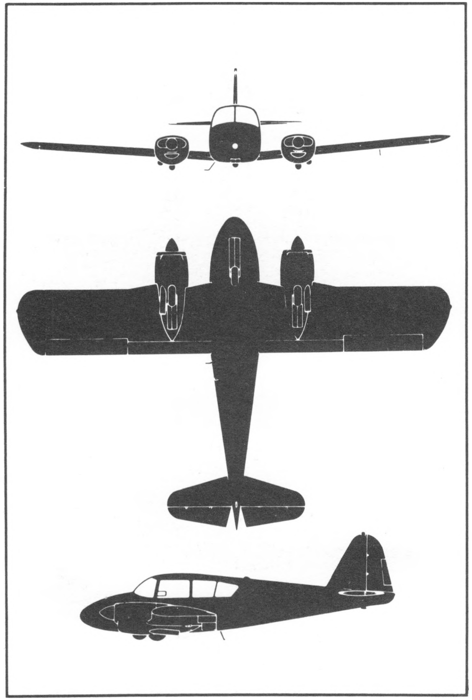


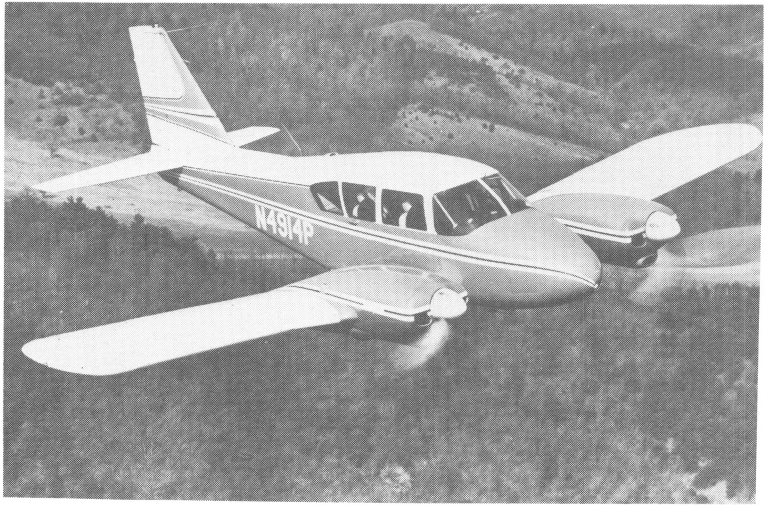
There have been several variants of the PA-31 Navajo since it was first introduced in 1964. Seating 6/8, the Navajo is used as an executive aircraft and a commuter airliner. When fitted with turbo-supercharged engines the type is called the Turbo-Navajo. The PA-31P, produced in 1970, has a pressurised cabin with fewer windows, and a longer fuselage. The PA-31C can fly 1,973km at a cruising speed of 383km/h. *Country of origin:* USA. *Main silhouette:* PA-31; *upper side view:* PA-31P. *Picture:* PA-31.

Piper PA-23 Apache

Confusion: Baron, Navajo

Power: 2 × Lycoming piston engines *Span:* 11.33m *Length:* 8.41m



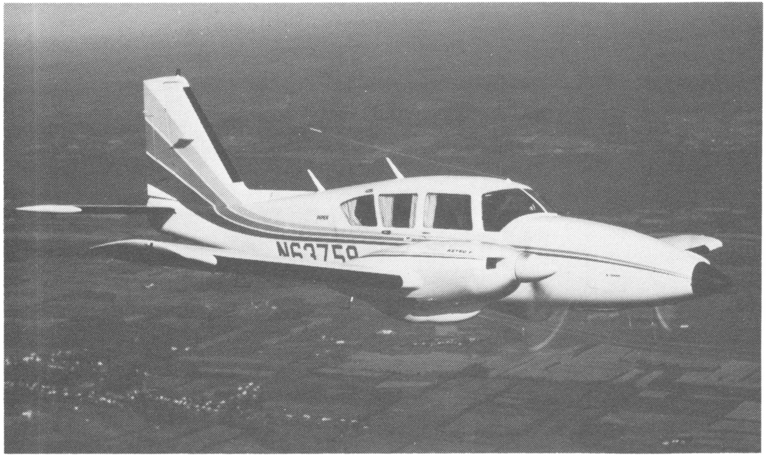


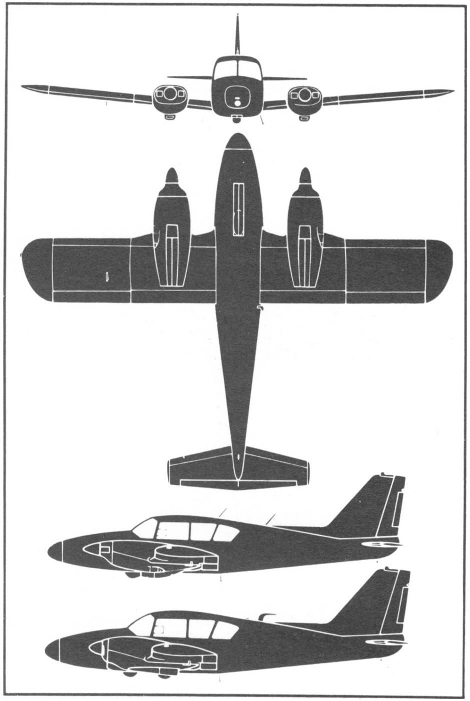
Originally known as the Twin-Stinson, the Piper PA-23-160 Apache first flew in 1952. In this form it had a curved fin, rudder and tailplane. Ten years later it was followed on the line by the PA-23-235 with a more bulbous cabin, a larger, square-cut fin and rudder, and square-cut tailplane. The Apache is similar to the Aztec but has 4/5 seats, a shorter nose and lower powered engines. The 235 cruises at 307km/h for up to 1,900km. *Country of origin:* USA. *Silhouette:* PA-23-160. *Picture:* Apache 235.

Confusion: Cougar, Cessna 310

Piper PA-23 Aztec

Power: 2 × Lycoming piston engines *Span:* 11.34m *Length:* 9.52m



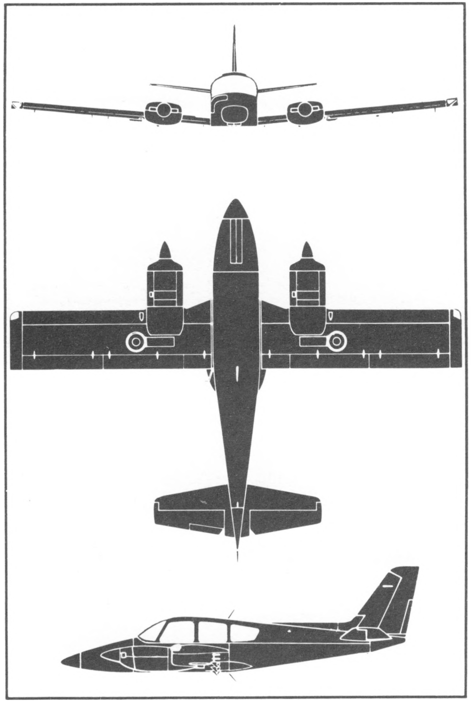


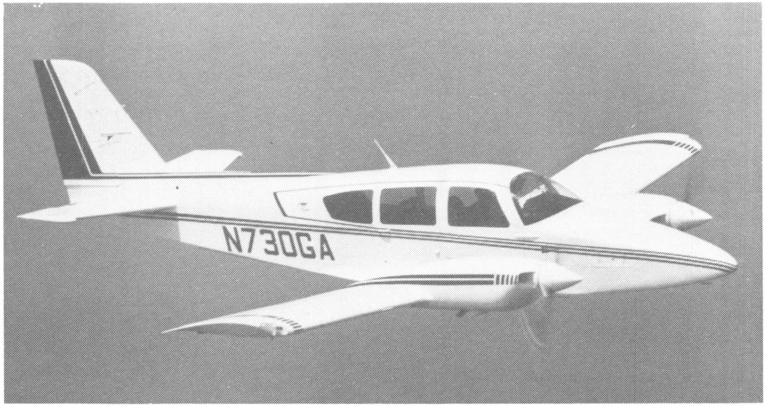
Originally built as the five-seat Aztec A in 1959, the Piper PA-23 evolved into the six-seat, longer-nosed Aztec B in 1962. The Aztec C, introduced in 1970, had redesigned engine nacelles and a longer nose and Aztec D was externally similar. The latest version is the Aztec F. Aztecs of various marks are fitted with turbo-superchargers. As is the case with many American light aircraft, new designations often denote updated equipment and fittings rather than any change in outline. The Aztec F cruises at 338km/h for 1,335km. *Country of origin:* USA. *Main silhouette:* Aztec D; *lower side view:* Aztec B. *Picture:* Turbo Aztec F.

Gulfstream Aerospace GA-7 Cougar

Confusion: Cessna 310

Power: 2 × Lycoming piston engines *Span:* 11.23m *Length:* 9.1m



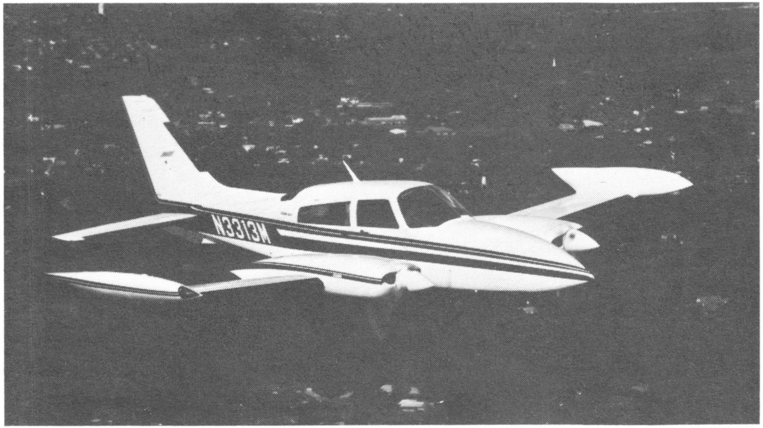


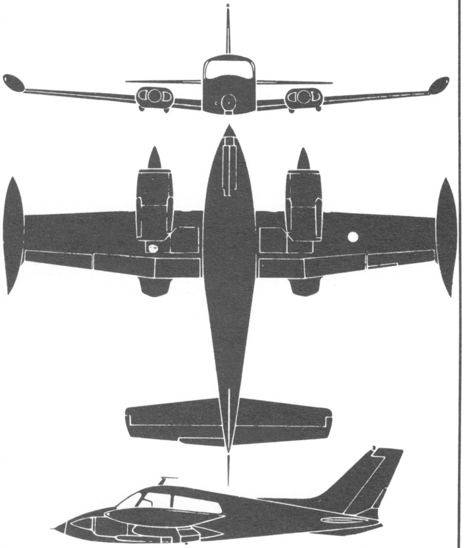
Originally a Grumman product, the GA-7 Cougar is intended for business and training use and can seat four/six people. First flown in 1974, the Cougar was significantly re-engineered before the production prototype flew in 1977. Gulfstream Aerospace's first entry into the lightweight twin-engined market, the Cougar was intended mainly for business use and for private pilots who already have instrument-flying experience. It can also be used as an economical twin-engined trainer. The production prototype flew for the first time on 14 January 1977 and delivery of production aircraft began in February 1978. Production has ceased. The Cougar has a maximum range of 2,035km and cruises at 305km/h. *Country of origin:* USA.

Confusion: Cougar, Twin Comanche

Cessna 310

Power: 2 × Continental piston engines *Span:* 11.25m *Length:* 9.74m



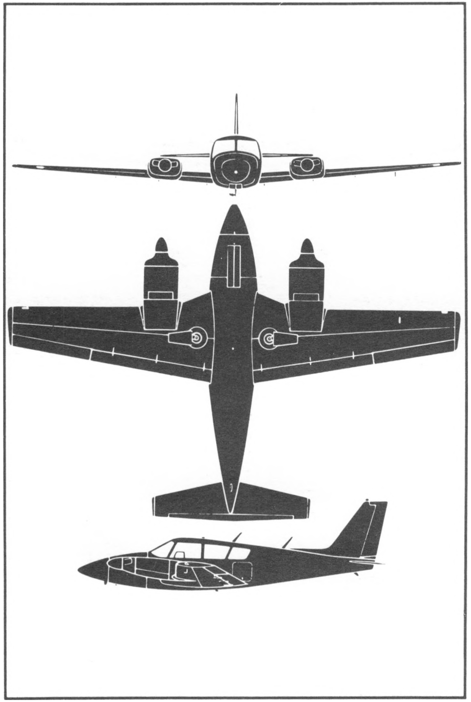


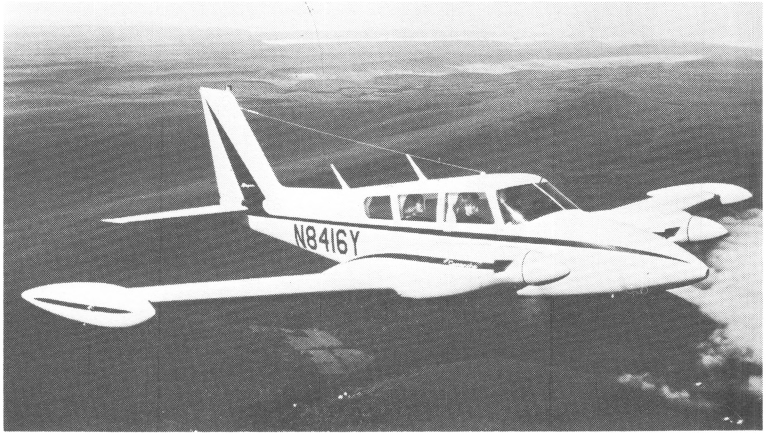
First flown in 1953, the Cessna 310 four-seat twin had a straight fin in its original form. In addition to hundreds of civil sales, the type was adopted by the USAF as the U-3A. With engine improvements incorporated, the 310 was marketed as the Riley 65 Rocket and Turbo Rocket. In 1960 the Cessna Model 310 appeared with a swept fin and more windows. Over 5,000 310s were built and a large number of variants are flying, including some with turbo-supercharged engines and a further USAF version, the U-3B. Another development is the 320C Skyknight, seating up to seven. Cruising speed is 267km/h and range is up to 1,141km. *Country of origin:* USA. *Silhouette and picture:* Cessna 310.

Piper PA-30/PA-39 Twin Comanche

Confusion: Seneca

Power: 2 × Lycoming piston engines *Span:* 11.22m *Length:* 7.67m



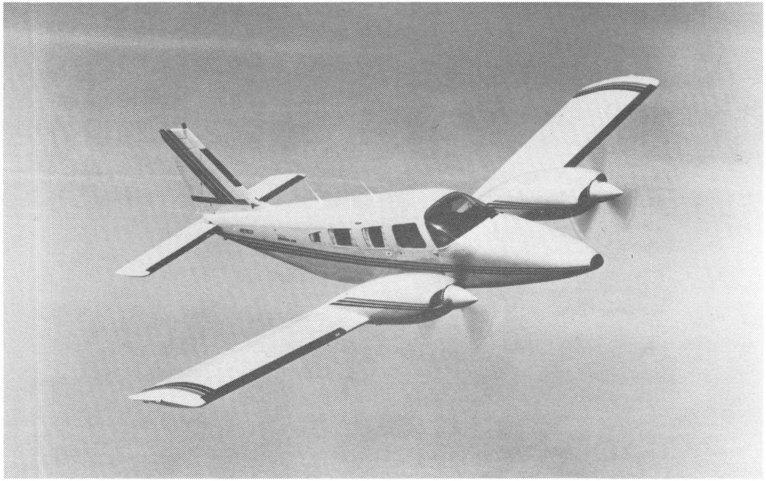


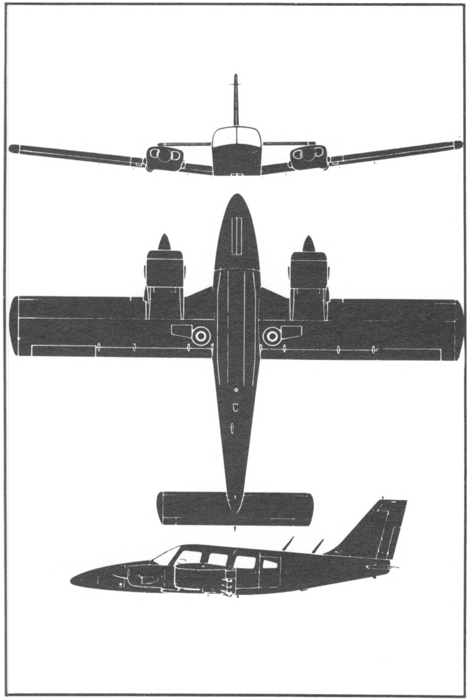
Developed as a twin version of the PA-24 Comanche single-engined light aircraft, the Twin Comanche first flew in 1961 and has been built in large numbers. A four/six-seater, it cruises at 319km/h and has a range of 1,335km. There are many variants, differing mainly in engine power, propellers and internal layout. Some are fitted with wingtip fuel tanks. From 1971 the PA-30 was succeeded by the externally similar PA-39. Refinements introduced with the later Twin Comanche variants include turbo-supercharging, first applied to the Turbo Twin Comanche B and C, and counter-rotating propellers (to eliminate torque effects) on the Twin Comanche C/R. *Country of origin:* USA. *Silhouette:* PA-39. *Picture:* PA-30C.

Confusion: Twin Comanche

Piper PA-34 Seneca

Power: 2 × Continental piston engines *Span:* 11.85m *Length:* 8.73m



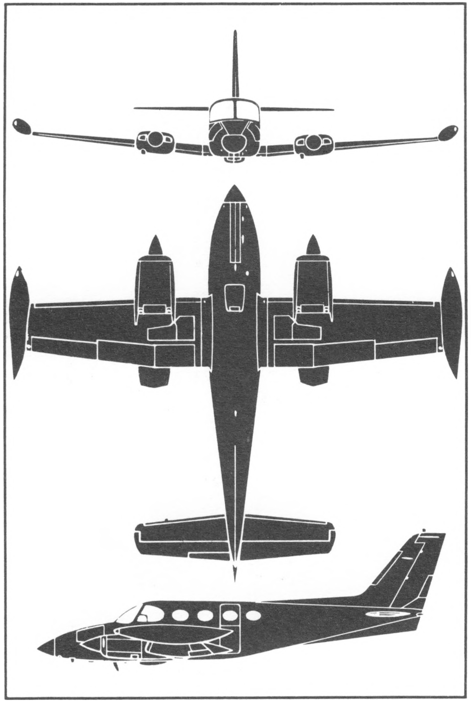


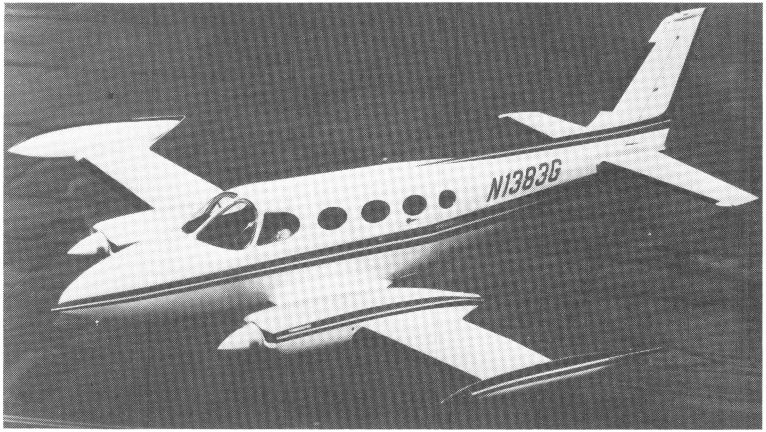
The PA-34 Seneca six-passenger light transport and trainer was introduced in 1971. It has twin turbo-supercharged Continental engines, cruises at 285km/h and has a range of 1,635km. Poland holds a licence to build the Seneca II and distribute it in eastern Europe. These aircraft are powered by PZL-Franklin engines and designated PZL-112 M-20 Mewa (Gull). The PA-34 has detail modifications and is called the Seneca III. *Country of origin:* USA. *Silhouette:* Seneca II. *Picture:* Seneca III.

Cessna 340A

Confusion: Duke, Aerostar

Power: 2 × Continental piston engines *Span:* 11.6m *Length:* 10.46m



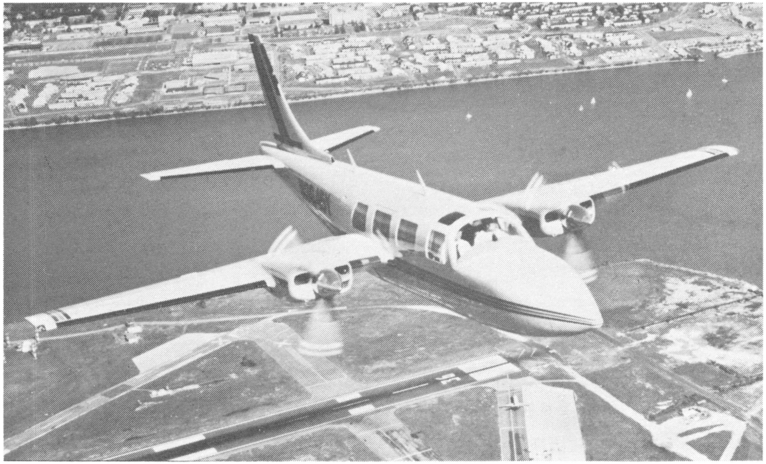


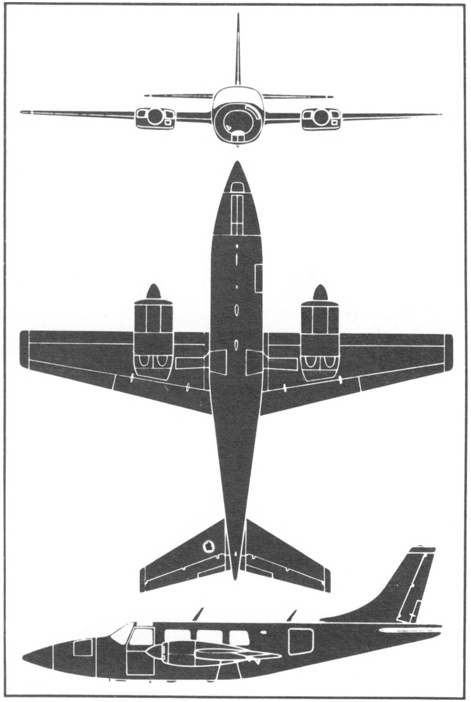
Developed from the Cessna 310, the Model 340A is a four-passenger pressurised business aircraft. The layout is similar to that of the 310 but the fuselage cross-section is different and the windows are circular. The 340 in effect replaced the 320C Skyknight. As with other similar types in the Cessna range, the powerplants are Continental flat-four piston engines, which have a distinctive rectangular appearance in the head-on view. Range of the 340A is 2,543km at an economical cruising speed of 332km/h. Later 340A variants feature a number of improvements, including better forward view as a result of structural changes and a new strobe lighting system. *Country of origin:* USA.

Confusion: Duke, Beech 99

Piper Aerostar

Power: 2 × Lycoming piston engines *Span:* 11.18m *Length:* 10.61m



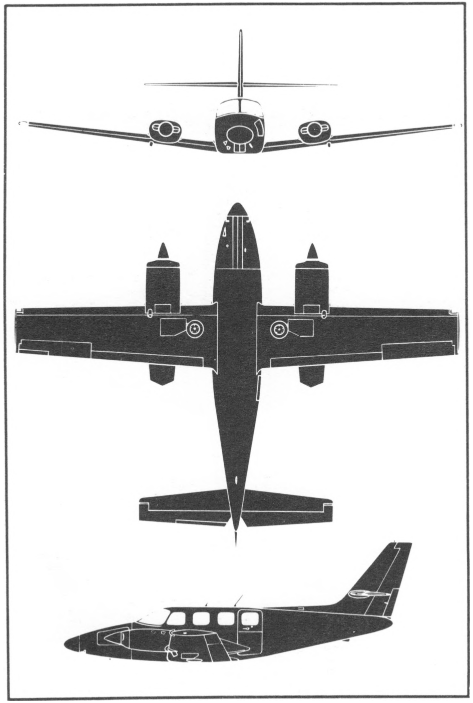


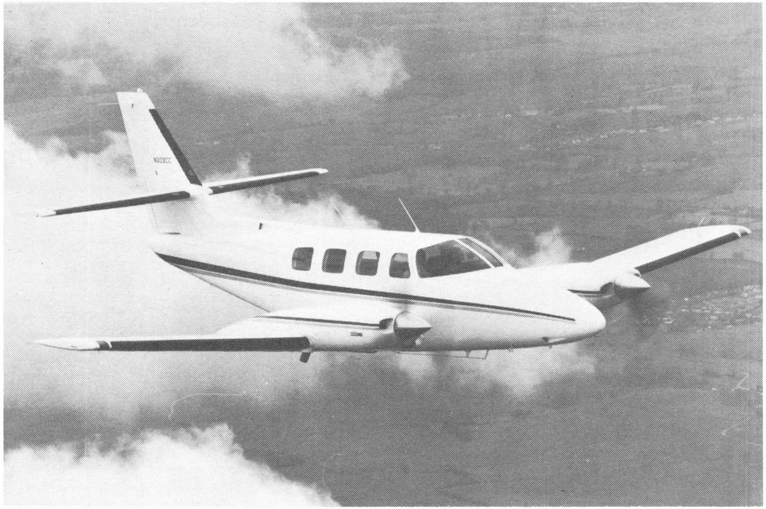
The first of the Aerostar series of light transport aircraft flew in 1967 as the Model 600. The 601P has more wingspan and a pressurised fuselage. A six-seater, the Aerostar 601 is one of a small number of types with a straight wing and swept tail surfaces. The 601B cruises at 434km/h and has a range of 2,309km. Around 1,000 Aerostars of all types have been sold. The 700P has higher powered engines. Introduced in 1981, the Aerostar 602P is generally similar to the 601P. *Country of origin:* USA. *Silhouette:* 601P. *Picture:* 602P.

Cessna T303 Crusader

Confusion: Duke, Chancellor

Power: 2 × Continental piston engines *Span:* 11.48m *Length:* 9.27m



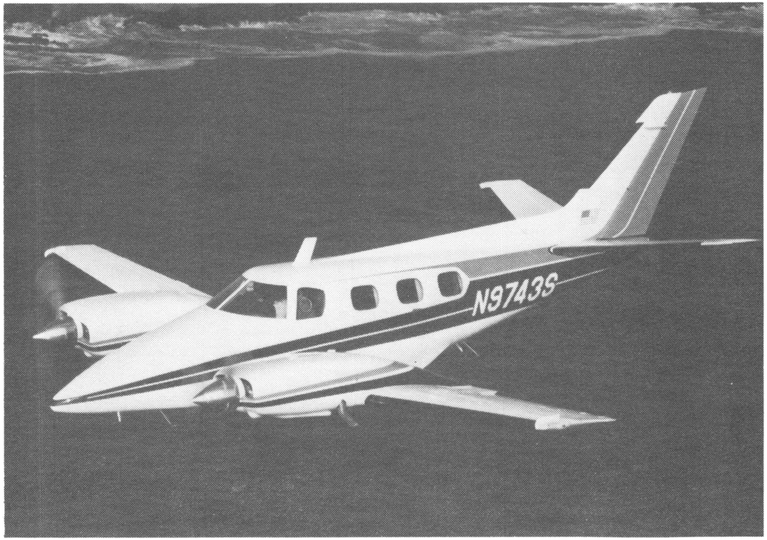


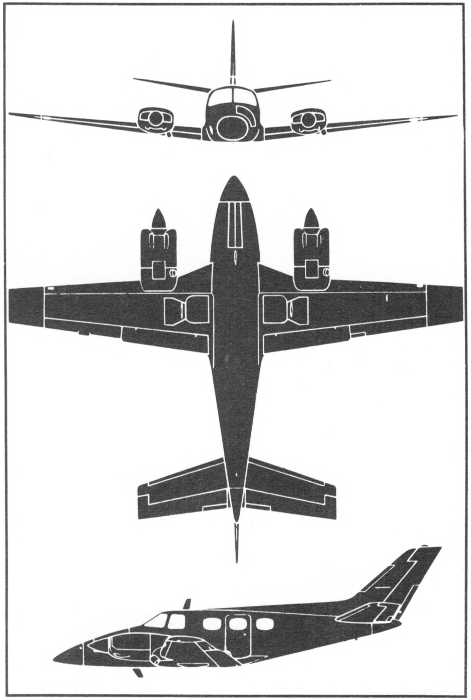
First flown in 1978 as the four-seat Model 303, the Crusader was redesignated T303. With six seats and turbo-supercharged engines, the Crusader was the first completely new twin-engined type to be put into production by Cessna for a decade. Deliveries began in September 1981 and 297 had been delivered by the time production was suspended at the end of 1987. Cruising speed is 333km/h and maximum range 1,861km. *Country of origin:* USA.

Confusion: Queen Air, Seminole

Beechcraft Duke

Power: 2 × Lycoming piston engines *Span:* 11.96m *Length:* 10.31m



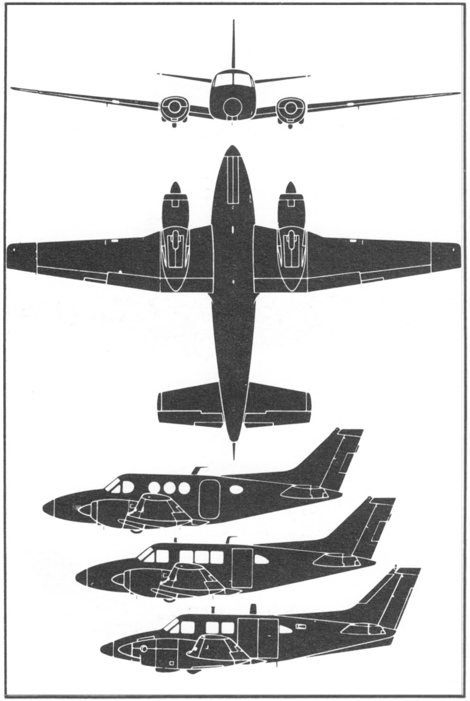


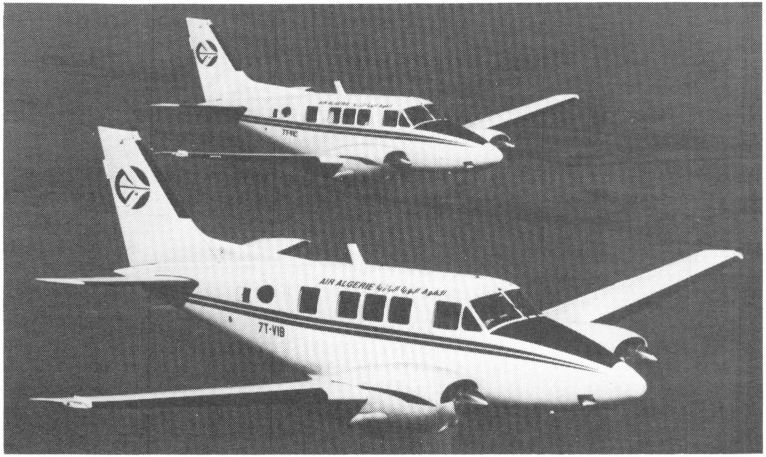
A pressurised, turbo-supercharged light transport, the Beech B60 Duke seats four/six passengers, cruises at 431km/h and has a range of 1,872km. A total of 596 Dukes were built in two versions, the A60 and B60, before production ceased. The B60, powered by Lycoming TIO-541-E1C4 engines, entered production in 1974. *Country of origin:* USA. *Silhouette and picture:* B60.

Beechcraft Queen Air/Seminole

Confusion: King Air

Power: 2 × Lycoming piston engines *Span:* 15.32m *Length:* 10.82m



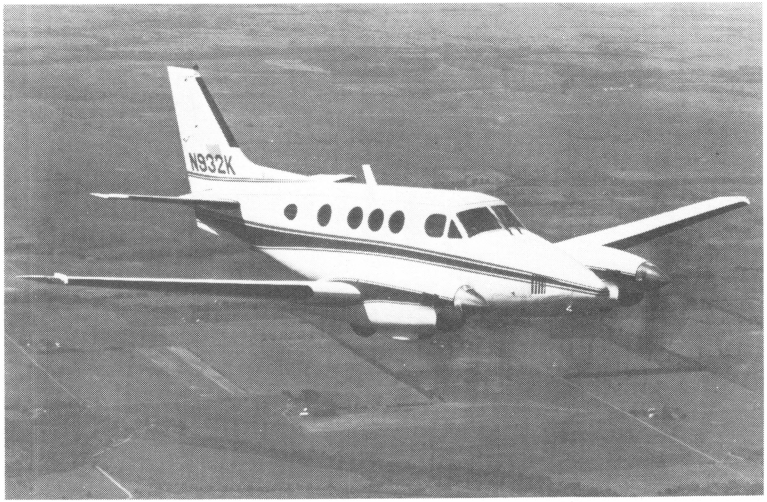


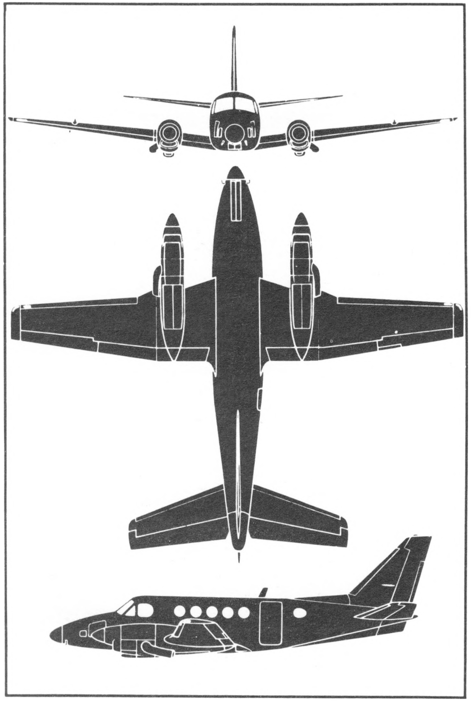
Like the rest of the Beech range, the Queen Air has been built in very large numbers for both civil and military use. A four/nine-passenger twin, the Queen Air has been produced as the 65/A65, U-8F (US Army), Model 70/80/A80/B80 and U-21A, B, C, E and G (US Army). The U-8F, characterised by a straight fin, is called the Seminole. The Queen Air is in service both as an executive aircraft and a feederliner. The B80 seats 11 passengers and is called the Queen Airliner. It has a maximum cruising speed of 360km/h and a range of 2,494km. *Country of origin:* USA. *Main silhouette:* B80; *top side view:* B88; *bottom side view:* U-21. *Picture:* B80.

Confusion: Beechcraft 99, Queen Air

Beechcraft King Air

Power: 2 × PT6A turboprops *Span:* (100): 13.98m *Length:* 12.1m



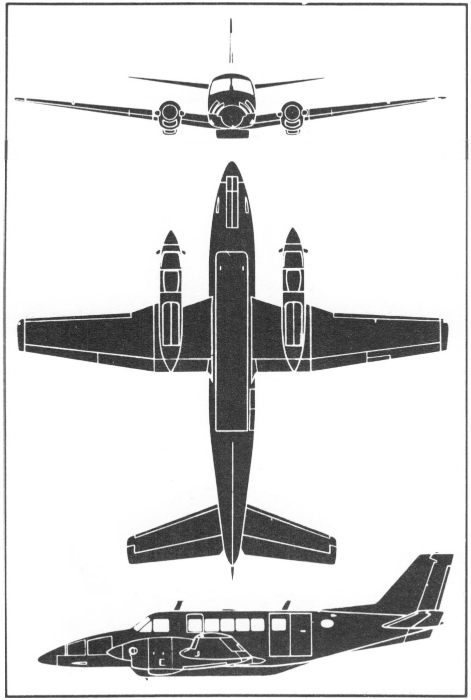


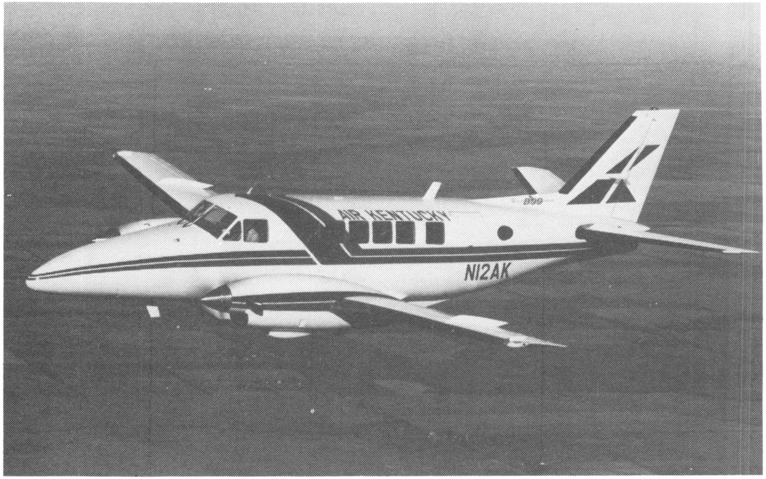
Based on the 65-80 Queen Air but with a redesigned pressurised fuselage, the King Air is a 16-seat twin-turboprop business aircraft. Models include the 90/A90/B90/C90/E90/100/B100 and T-44 advanced trainer for the USAF. Current version is the C90A. Over 1,400 King Air 90s have been built and the type is in use in many countries. Maximum cruising speed is 460km/h and range 2,425km. *Country of origin:* USA. *Silhouette:* B100. *Picture:* E90.

Beechcraft B99 Airliner

Confusion: King Air, Queen Air

Power: 2 × PT6A turboprops *Span:* 14m *Length:* 13.58m



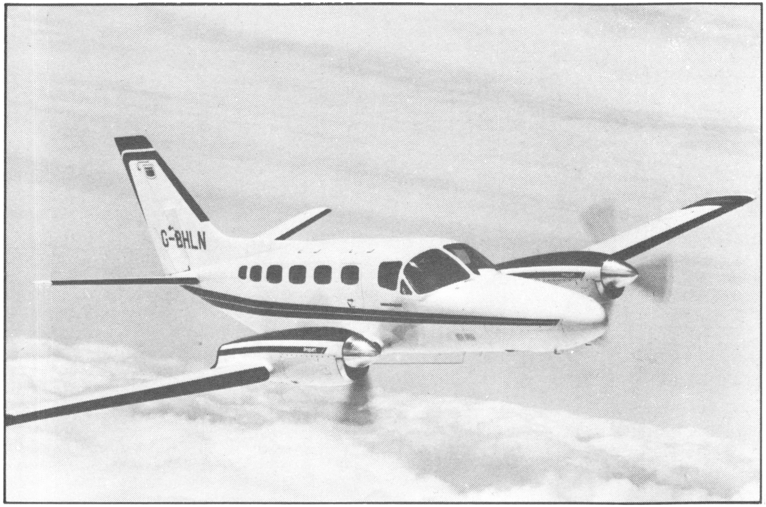


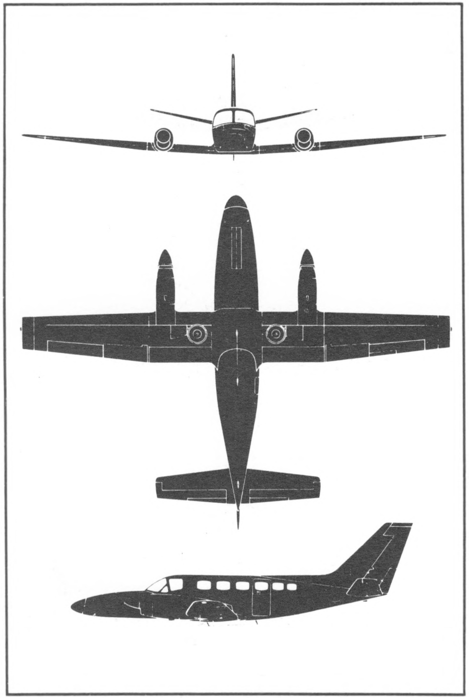
The B99 Airliner is a twin-turboprop unpressurised 17-seat feederliner/air taxi. It first flew in 1966 and deliveries began in 1968. Similar in outline to other Beech twins of similar size, the B99 has a particularly long nose. A main cargo door allows the aircraft to be used for all-cargo or passenger/cargo operations. Maximum cruising speed is 454km/h and range 853km. Offering increased power and systems refinements, the C99 was known as the C99 Airliner. Deliveries began in 1981. *Country of origin:* USA.

Confusion: Navajo, Chieftain, Titan

Cessna 441 Conquest II

Power: 2 × TPE331 turboprops *Span:* 15.04m *Length:* 11.89m



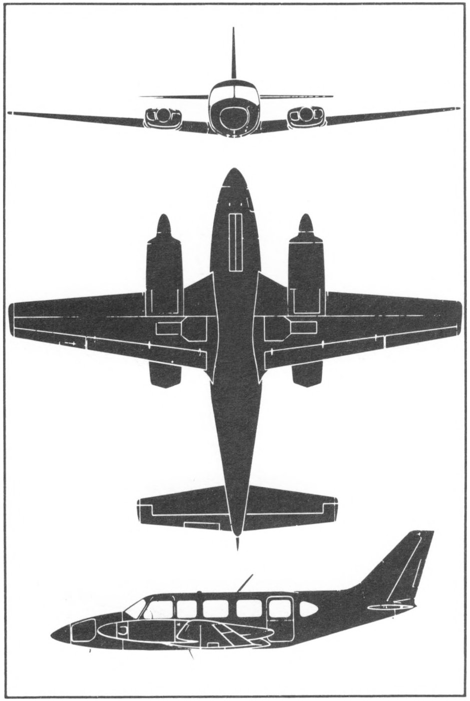


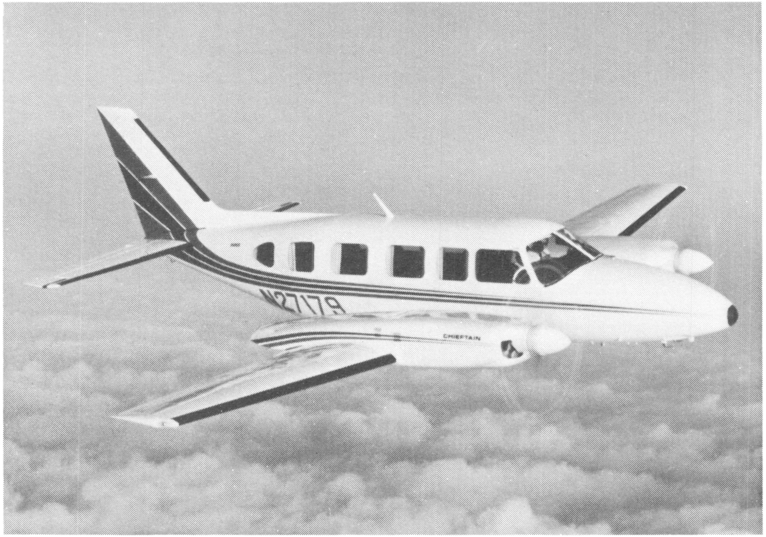
Designed to fill a slot between piston-engined and turbofan business aircraft, the Cessna 441 Conquest II seats eight/ten passengers in a pressurised cabin. It has a high-aspect-ratio wing, while the general layout is similar to that of other Beech twins. Range is 2,077km and maximum cruising speed 513km. The prototype Conquest flew in 1975 and 360 had been produced when production was suspended in December 1987. *Country of origin:* USA.

Piper PA-31-350 Chieftain

Confusion: Conquest, Titan

Power: 2 × Lycoming piston engines *Span:* 12.4m *Length:* 10.55m



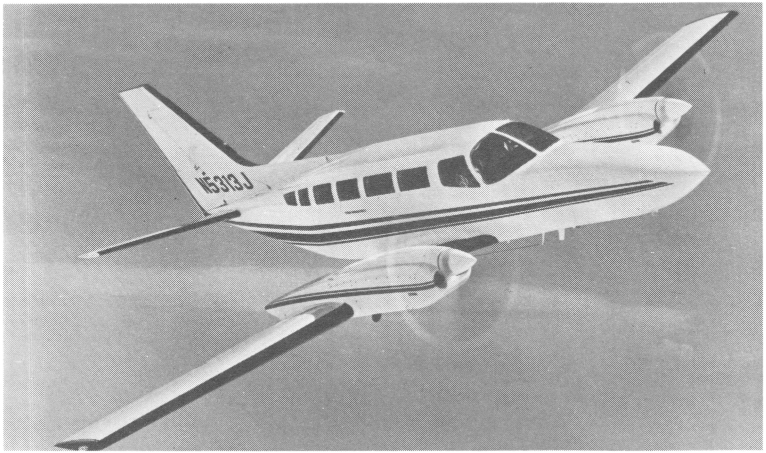


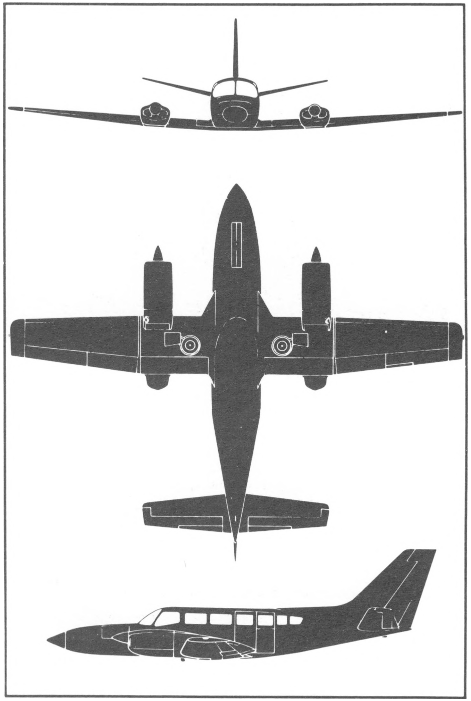
The PA-31-350 Chieftain has a longer fuselage than the Navajo and is a six/ten-seat executive/commuter/cargo aircraft. Cargo can be carried both in the cabin and in the nose. The Lycoming engines have turbo-superchargers. Cruising speed is 404km/h and range 1,640km. Production was suspended in June 1987 when nearly 2,000 Chieftains had been sold. *Country of origin:* USA.

Confusion: Chieftain, Chancellor

Cessna Titan

Power: 2 × Continental piston engines *Span:* 14.12m *Length:* 12.04m



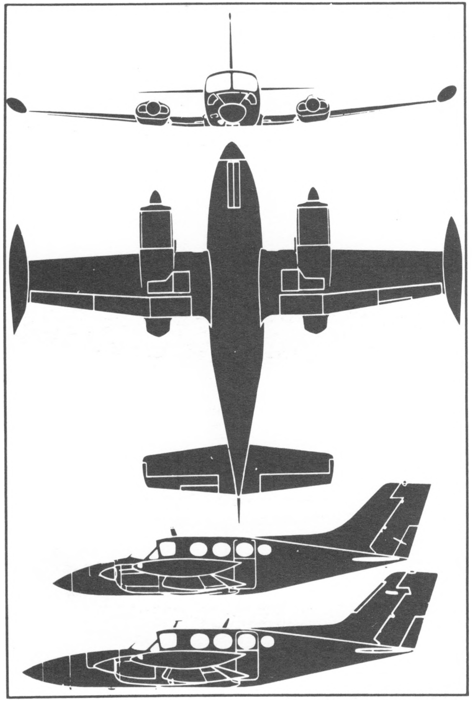


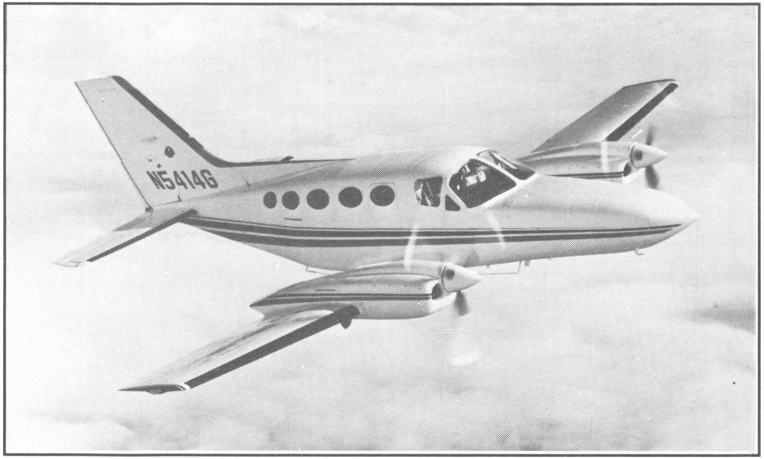
Intended to provide greater payload/range performance than the Cessna 402, the Cessna Titan was originally known as the 404. The cabin is convertible to cargo, feederliner and executive configurations and double doors can be fitted for loading large cargo. The all-passenger Titan is called the Ambassador, while the utility passenger/cargo version is known as the Courier. There are no significant external differences between the two variants. Maximum cruising speed is 369km/h and range 2,572km. Several hundred Titans were delivered. *Country of origin:* USA.

Cessna 421 Golden Eagle

Confusion: Cessna 401

Power: 2 × Continental piston engines *Span:* 12.53m *Length:* 11.09m



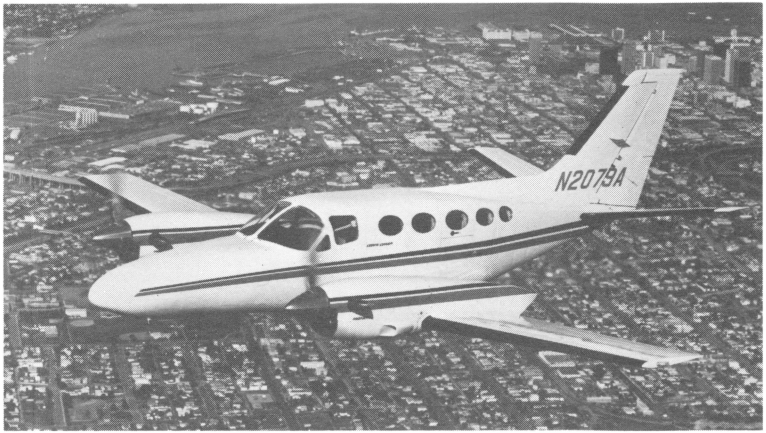


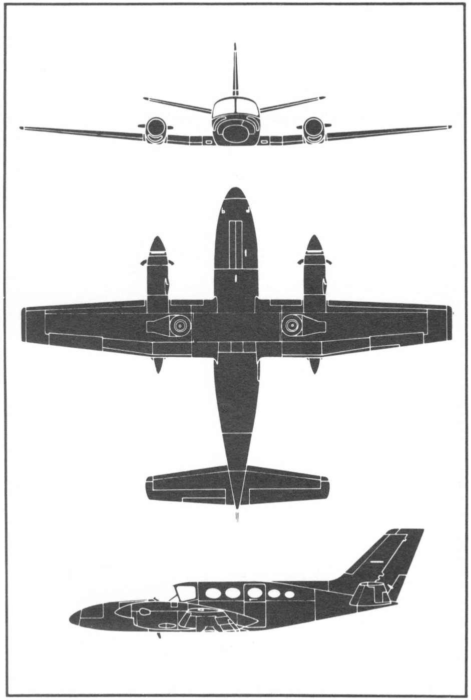
This series of pressurised business aircraft began in 1967 with the Model 421, which was developed into the 421B Golden Eagle and the 421B Executive Commuter. In 1975 came the 421C Golden Eagle, which had a new outer wing without the distinctive wingtip fuel tanks. The 421C Executive Commuter seats up to 11 as a feederliner and has a maximum cruising speed of 450km/h and a range of 2,317km. Later versions were Golden Eagle, Golden Eagle II and Golden Eagle III. A total of 1,909 Golden Eagles were delivered. *Country of origin:* USA. *Main silhouette:* Model 421A; *lower side view:* Model 421B. *Picture:* Model 421C.

Confusion: Golden Eagle, Cessna 401

Cessna 425 Conquest I

Power: 2 × PT6A turboprops *Span:* 13.45m *Length:* 10.9m

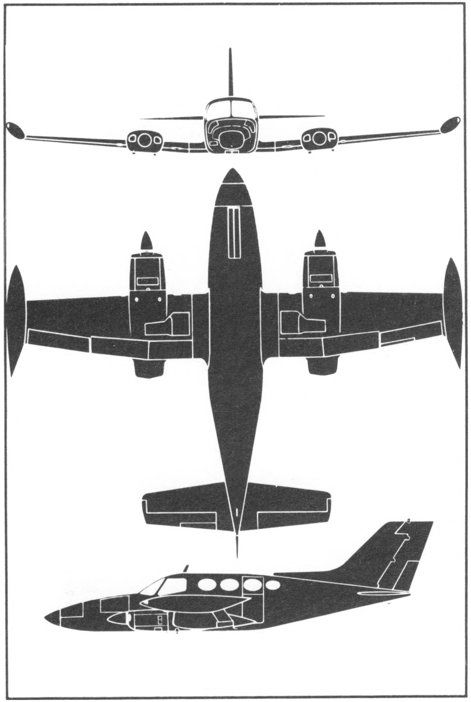


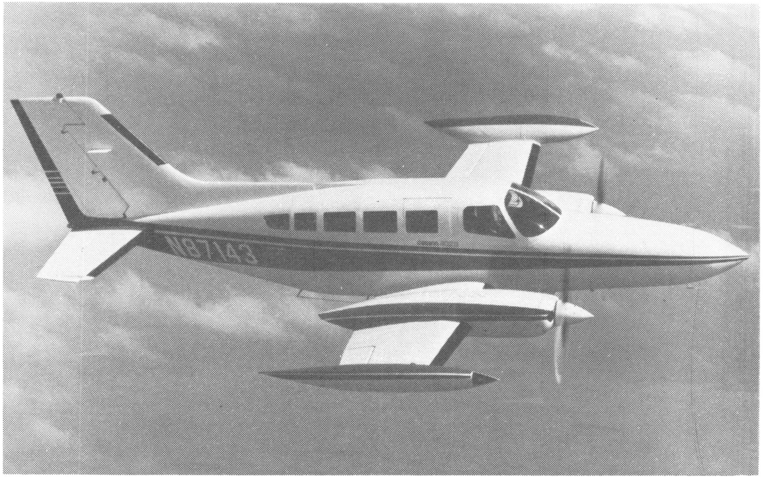


A turboprop six/eight-seat pressurised business executive transport, the Conquest I (originally known as Corsair) is based on the airframe of the 421 Golden Eagle. Design began on 1 November 1977 and construction of a prototype was initiated three months later on 30 January 1978. This flew for the first time on 12 September 1978 and construction of a pre-production aircraft was started during 1979. By end 1987, 232 of the earlier Corsairs and the Conquest I had been delivered. At a cruising speed of 389km/h the Corsair has a range of 3,050km. A total of 499kg of baggage and up to six passengers can be carried. *Country of origin:* USA.

Cessna 401/402 *Confusion:* Cheyenne

Power: 2 × Continental piston engines *Span:* 12.15m *Length:* 11m



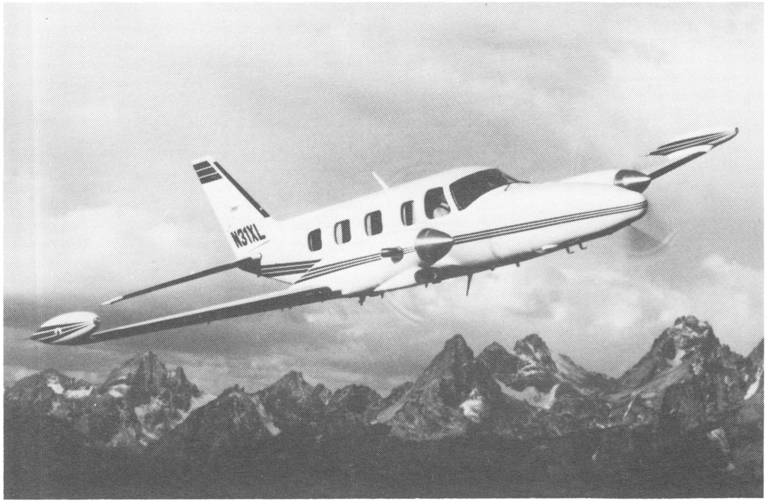


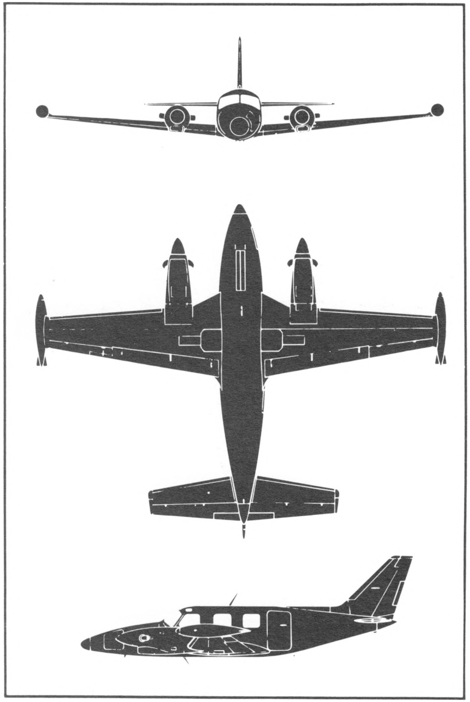
The Cessna 401 and 402 have basically similar airframes, the series having the names Utililiner and Businessliner for the six/eight-seat feeder and nine-seat executive versions. Several variants with differing cockpit, cabin and equipment standards have been built. Production of the 401 finished in 1972 and thereafter the 402C was standard. A total of 1,540 402Cs were built. The 402 Businessliner has a maximum range of 2,637km and a maximum cruising speed of 351km/h. Wingtip tanks are fitted as standard. *Country of origin:* USA. *Silhouette:* Model 401B. *Picture:* Model 402.

Confusion: Commander 700, T-1040

Piper PA-31T Cheyenne II/PA-31T2 Cheyenne II XL

Power: 2 × PT6A turboprops *Span:* 13.01m *Length:* 10.57m



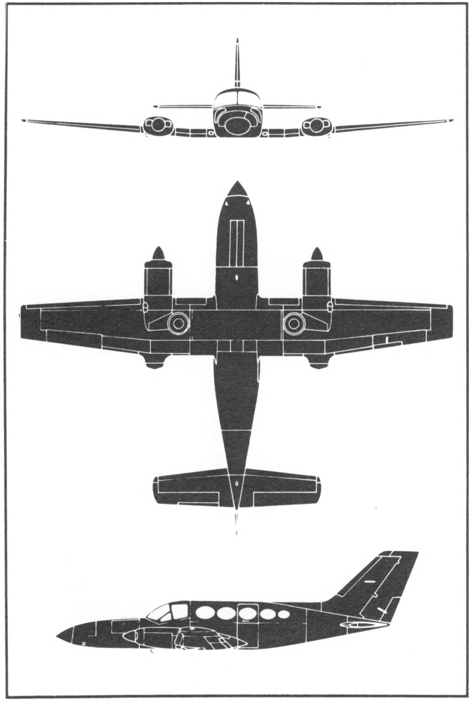


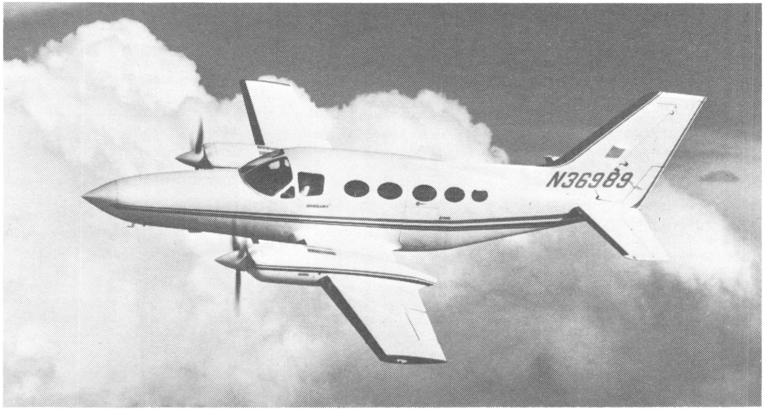
The first turboprop-powered Piper aircraft, the PA-31T Cheyenne II light transport first flew in 1969. The airframe is similar to that of the pressurised Navajo. Seating is provided for eight including the pilot. Large wingtip fuel tanks are fitted. Economical cruising speed is 393km/h and range is 2,739km. A lower powered version is known as the Cheyenne I, while the Cheyenne II XL has a fuselage stretch. *Country of origin:* USA. *Silhouette:* Cheyenne II. *Picture:* Cheyenne II XL.

Cessna 414A Chancellor

Confusion: Conquest, Titan

Power: 2 × Teledyne Continental piston engines *Span:* 13.4m *Length:* 11.09m



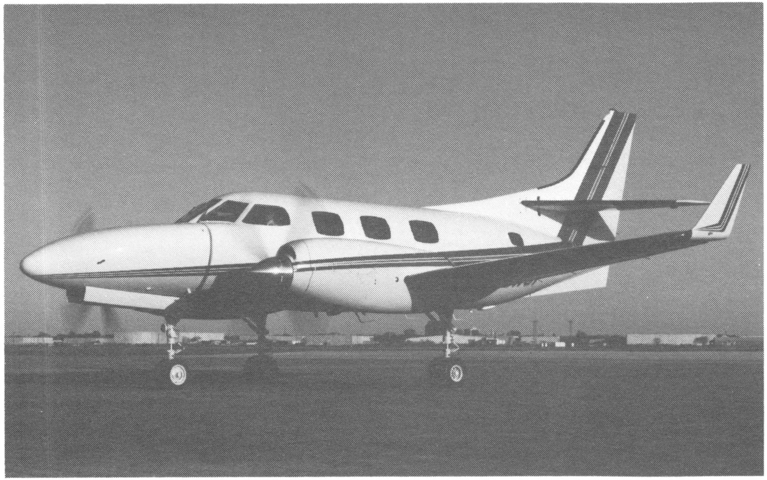


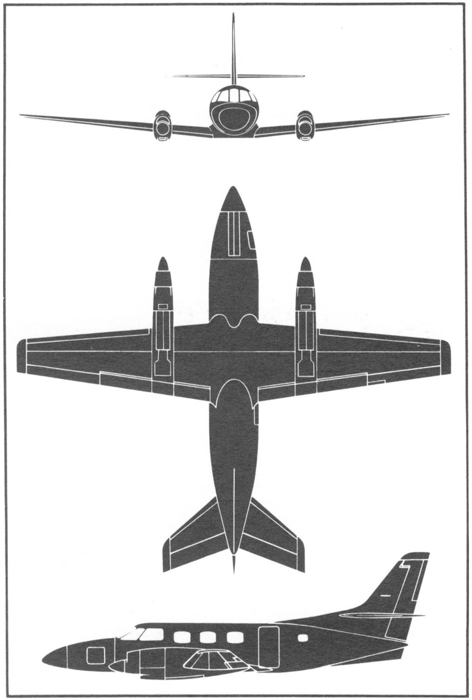
Cessna introduced the pressurised twin-engined Model 414 on 10 December 1969, as a 'step-up' aircraft for owners of Cessna or other light unpressurised twins. It combined the basic fuselage and tail unit of the Model 421 with the wing of the Model 402 and had 310hp turbocharged engines. Successor to the 414, the 414A Chancellor is a utility transport seating up to six passengers in a pressurised cabin. Major changes from the Model 414 included a new 'wet' wing of increased span and extended nose and baggage area. First introduced in 1978, the Chancellor has been built in I, II and III versions with differing equipment. Maximum speed is 443km/h and range at 267km/h is 2,340km. Over 1,000 414/414A aircraft were built before the line was suspended. *Country of origin:* USA.

Confusion: Jetstream 31

Fairchild Merlin III

Power: 2 × TPE331 turboprops *Span:* 14.1m *Length:* 12.85m



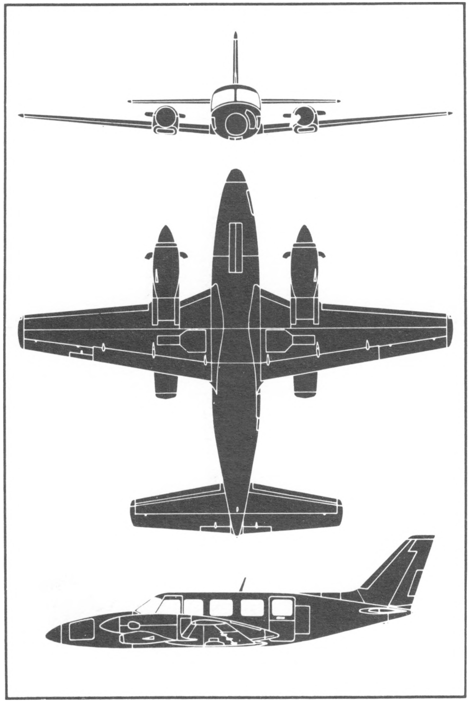


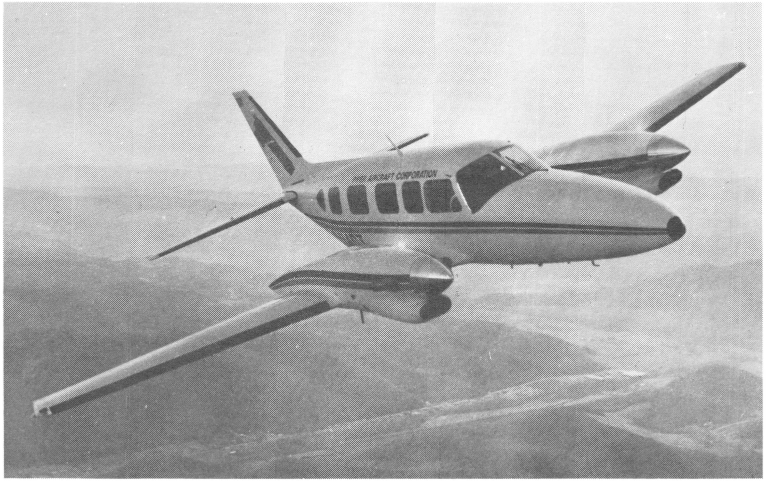
Produced in large numbers, the Swearingen Merlin series of executive transports has been steadily developed since its introduction in 1966. The original version was an eight-seater with two PT6 engines (IIA). Re-engined with TPE331s, this became the Merlin IIB. Merlin IIIA is an 8/11 passenger stretched version with four large side windows. The IIIB is powered by uprated TPE331s. The Merlin IIIC, was introduced in 1981 and was superceded in 1984, by the 8-10 passenger Fairchild 300 – similar to the IIIC but with winglets. *Country of origin:* USA. *Silhouette:* Merlin IIIC. *Picture:* Merlin 300.

Piper T-1040

Confusion: Chieftain, Cheyenne

Power: 2 × PT6A turboprops *Span:* 12.5m *Length:* 11.18m



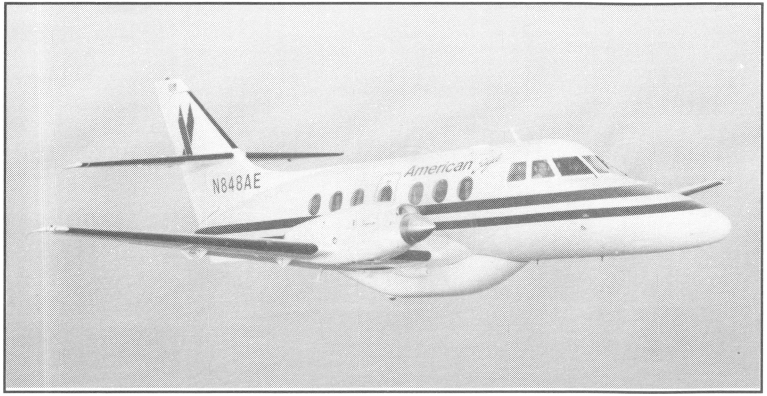


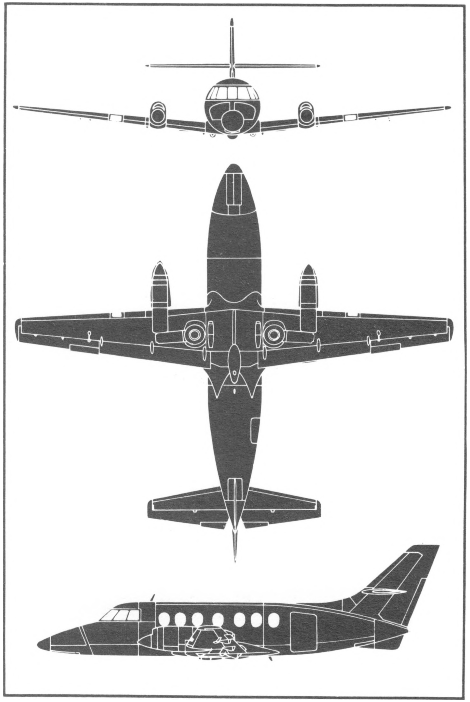
A commuter airliner, the nine-passenger T-1040 combines the wings, nose and tail of the Cheyenne with the fuselage of the Chieftain and is powered by two 500 shp turboprops. The prototype T-1040 (T = transportation) first flew in July 1981 but only a small number were built. With full payload the T-1040 has a range of 724km, flying at a cruising speed of 441km/h. *Country of origin:* USA.

Confusion: Merlin II/III

BAe Jetstream 31

Power: 2 × TPE331 turboprops *Span:* 15.85m *Length:* 14.37m



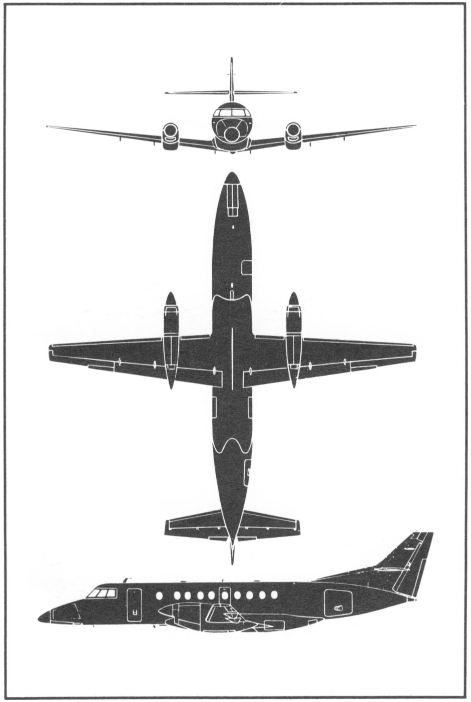


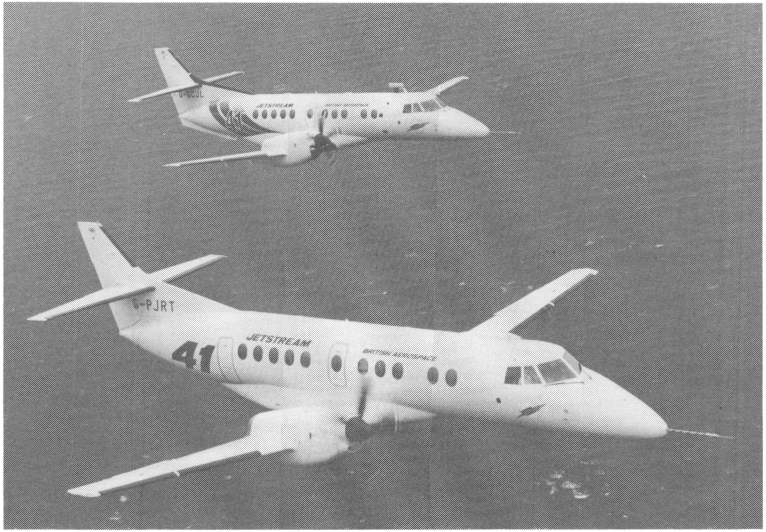
In its original form the Jetstream was developed by Handley Page and then Scottish Aviation. A total of 30 Astazou-powered Jetstreams 1 and 2 are still in civil service, while T1s and T2s are used by the RAF and the Royal Navy. British Aerospace Scottish Division (formerly Scottish Aviation) produced a much modified version called Jetstream 31, powered by two Garrett turboprops and aimed at the commuter and light business markets. A flight development aircraft flew in March 1980. Four Jetstreams, as T Mk 3 were ordered for the Royal Navy. The Jetstream Super 31 has more powerful TPE 331 engines. Over 350 31s and Super 31s have been ordered, including two for Tornado navigator training by the Royal Saudi Air Force. *Country of origin:* UK. *Picture:* Jetstream Super 31.

BAe Jetstream 41

Confusion: 125 series 800, Merlin 31

Power: 2 × TPE331 turboprops *Span:* 18.29m *Length:* 19.25m



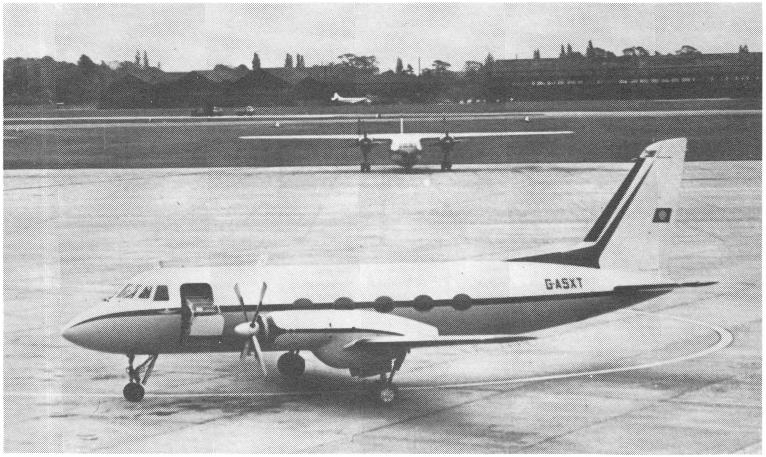


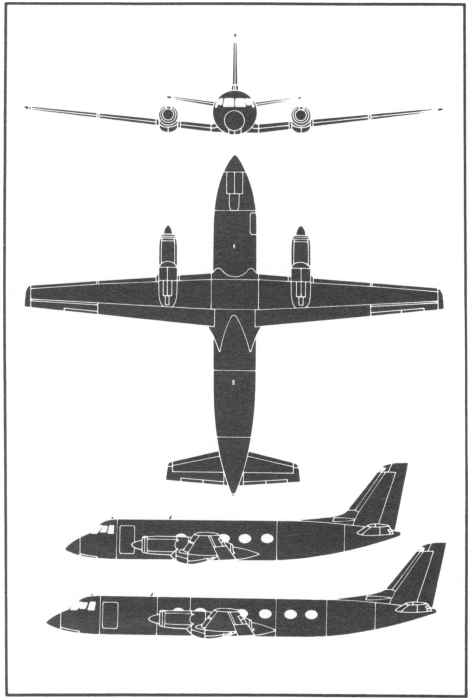
First deliveries of this lengthened 29-seat version of the Jetstream commuter aircraft were scheduled for late 1992 and BAe has commitments for over 100. First flown in September 1991, the Jetstream 41 has a fuselage 4.87m longer than the Jetstream 31. There is a forward passenger door, the wing is re-positioned and the floor is flat. Economical cruising speed is 482km/h and range 1,093km. *Country of origin:* UK.

Confusion: Jetstream 31, BAe 748, YS-11A

Gulfstream Aerospace Gulfstream I/I-C

Power: 2 × Dart turboprops *Span:* 23.92m *Length:* 19.43m



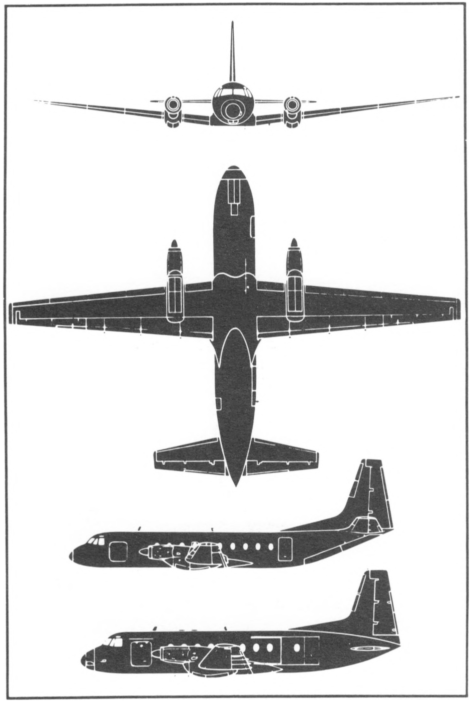


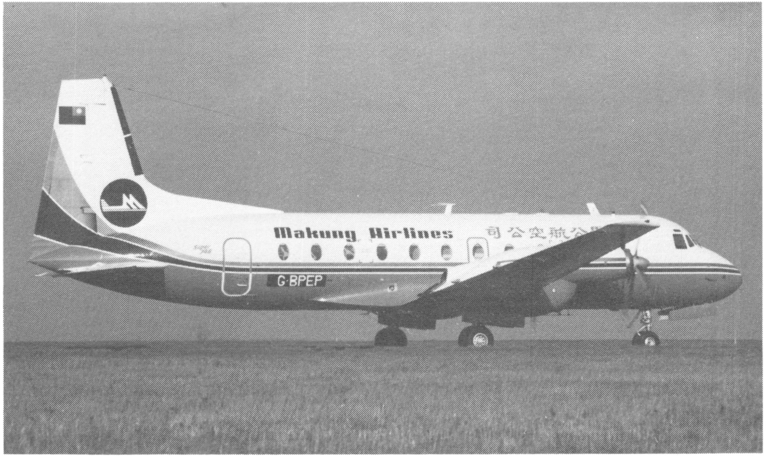
A long-range business aircraft, the Gulfstream Aerospace Gulfstream I was originally produced by Grumman. It seats up to 24 passengers. The layout is similar to that of the BAe 748. Maximum cruising speed is 560km/h and range with maximum fuel is 4,088km. Military versions include the TC-4C for the US Navy and the VC-4A for the US Coast Guard. Over 200 Gulfstream Is were built. The 37-passenger Gulfstream I-C commuter airliner, has a 3.25m fuselage extension. *Country of origin:* USA. *Main silhouette:* Gulfstream I; *lower side view:* Gulfstream I-C. *Picture:* Gulfstream I.

BAe 748

Confusion: YS-11A, Gulfstream I

Power: 2 × Dart turboprops *Span:* 30.02m *Length:* 20.42m

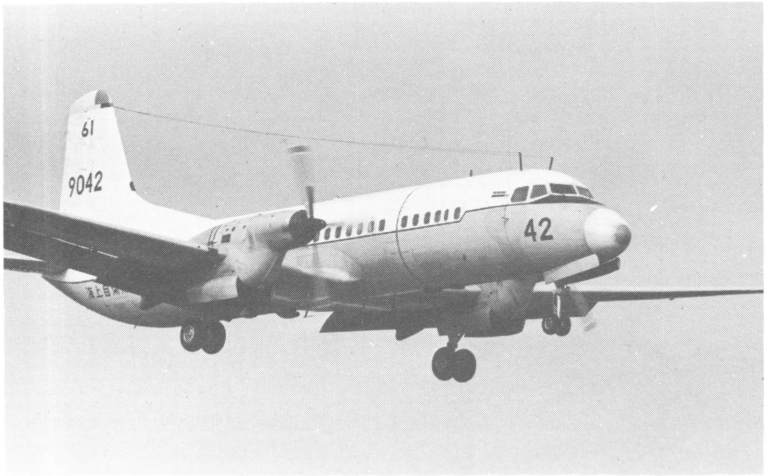


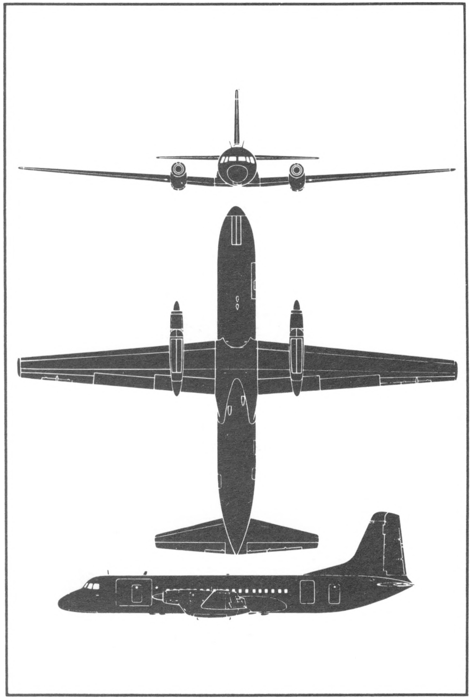


First flown in 1960, the 748 has ceased production after 381 examples were sold. Seating up to 58 passengers and with a maximum cruising speed of 448km/h, the 748 has been sold to many civil and military operators around the world. India has built a large number of 748s under licence. The Andover C1 cargo version has an upswept rear fuselage with loading doors, while some variants have a large aft side-loading door. Last civil version is the Super 748, with later mark Dart engines and internal refinements. *Country of origin:* UK. *Main silhouette:* 748 Military Transport; *upper side view:* Andover C1. *Picture:* Super 748.

NAMC YS-11A

Power: 2 × Dart turboprops *Span:* 32m *Length:* 26.3m



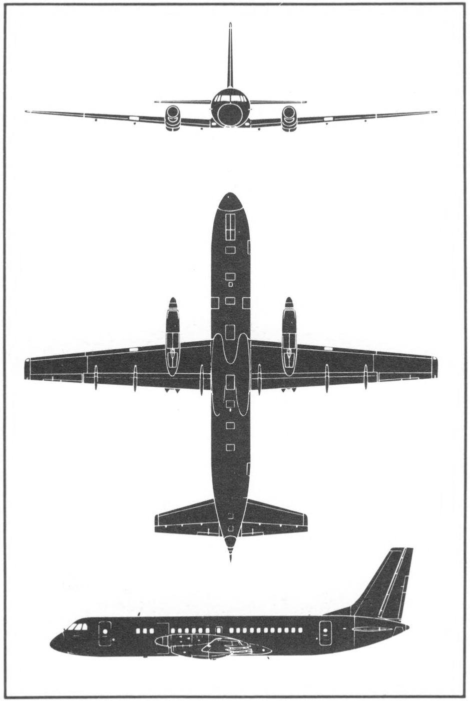


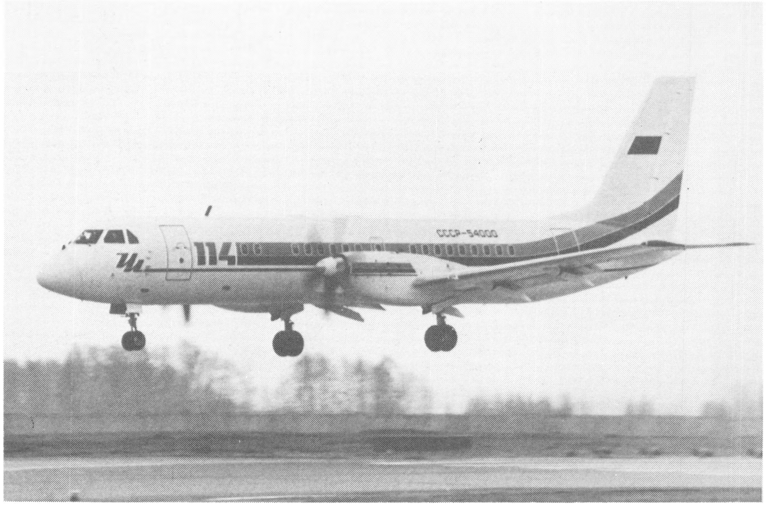
The YS-11A short/medium-range airliner went into service in 1965 and a total of 174 were built, including 22 for the Japan Maritime and Air Self-Defence Forces. The variants are designated -100, -200, -300, -400, -500 and -600. Up to 60 passengers can be carried at 466km/h for 1,090km. A big freight door can be fitted on the forward port side. The type has been exported and about 100 remain in airline use. *Country of origin:* Japan. *Silhouette:* YS-11A-300. *Picture:* JMSDF YS-11A.

Ilyushin Il-114

Confusion: ATP, SAAB 340

Power: 2 × TV7 turboprops *Span:* 30.0m *Length:* 26.31m



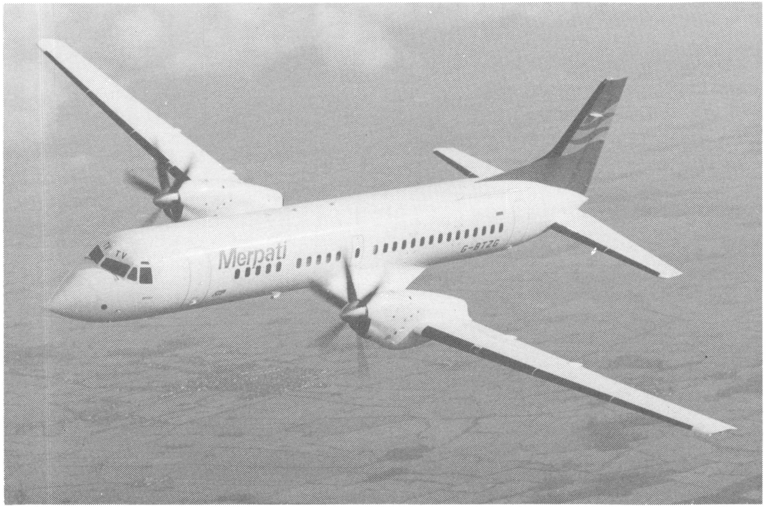


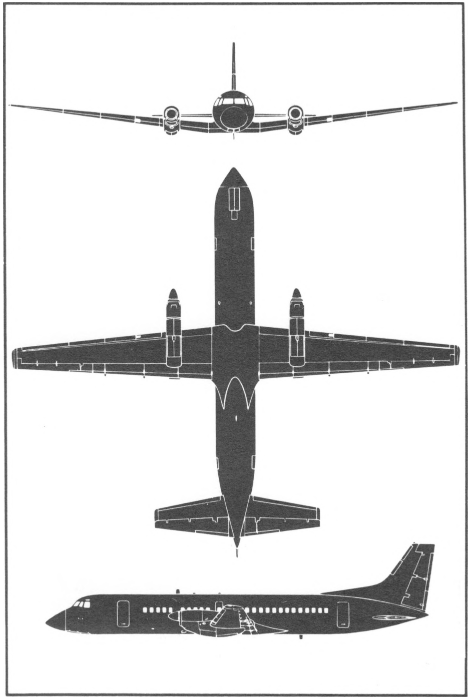
A 60-seater, the Il-114 was designed to replace An-24 category aircraft for Aeroflot. Three prototypes were built, the first flying in March 1990. The Aeroflot requirement is for about 500 Il-114s but the rate of delivery from 1992 onwards will depend on available Russian finance. The Il-114 cruises at 500km/h and has a range of 1,000km. An export version may be built in collaboration with a western country, in which case American engines would be fitted. *Country of origin:* Russia.

Confusion: BAe 748, YS-II, Gulfstream 1, Saab 340

BAe ATP

Power: 2 × PW126 turboprops *Span:* 30.63m *Length:* 26m



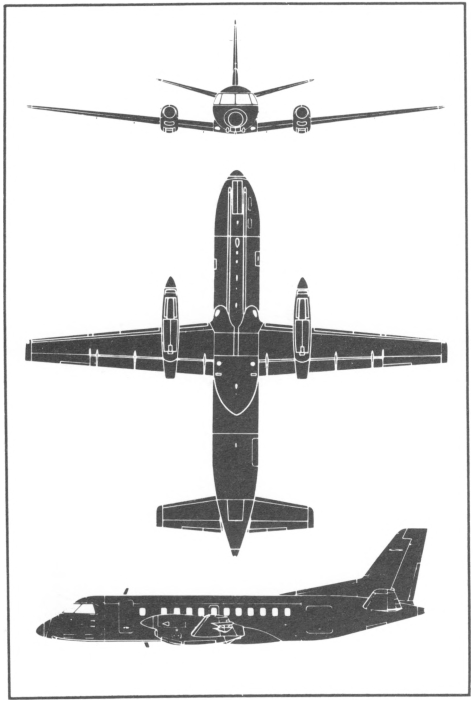


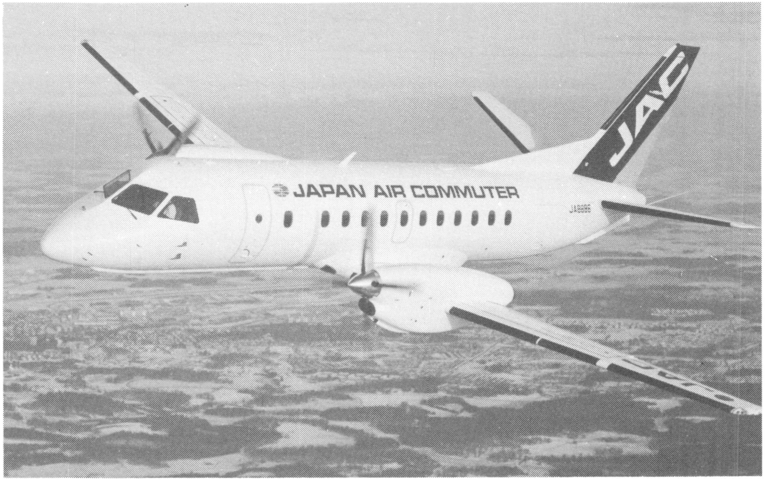
To succeed the Super 748, British Aerospace developed the Advanced Turboprop (ATP). A 64-seat regional Airliner, the ATP first flew in August 1986 and by end 1991, 59 had been ordered. The ATP has the same cross-section as the 748 but has a lower fuselage, wider span wings and swept tail. The Pratt & Whitney turboprops drive six blade propellers and the ATP is particularly quiet on take-off and landing. The ATP cruises at 496km/h and has a maximum range of 3,444km. *Country of origin:* UK.

Saab 340A

Confusion: Gulfstream I, Bandeirante

Power: 2 × CT7 turboprops *Span:* 21.44m *Length:* 19.72m

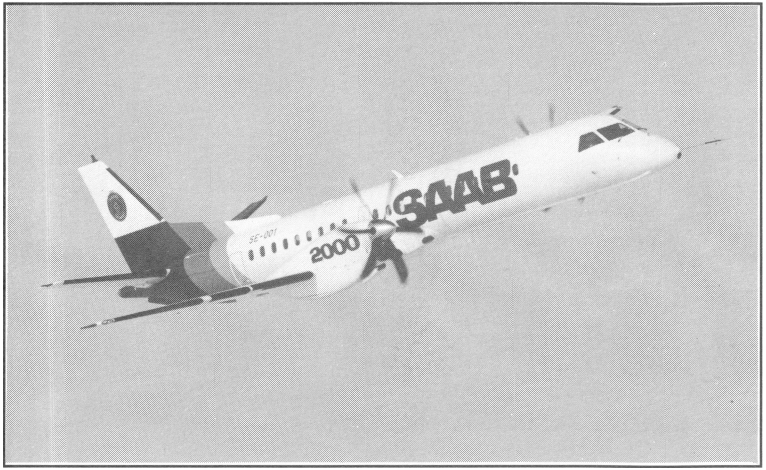


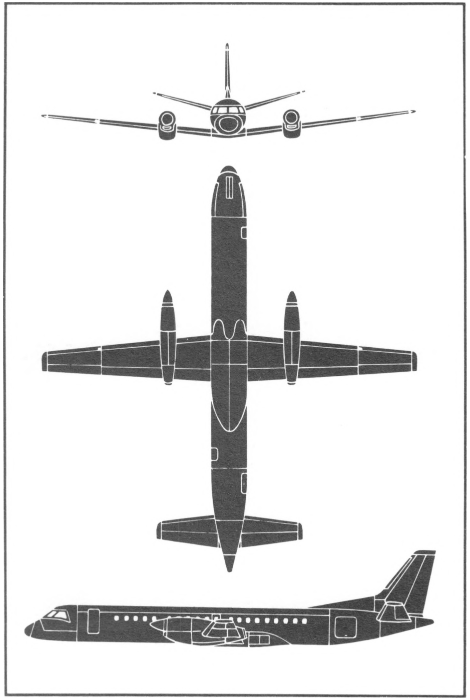


Originally jointly developed with Fairchild as the Saab-Fairchild 340, this regional airliner is now a wholly Saab programme. A 34-seater intended for economical operation over short-haul, low-density routes, the 340A first flew in January 1983 and it entered service in June 1984. Over 300 Saab 340s have been delivered. The 340B is a higher powered version with increased tailplane span. The 340 cruises at 467km/h and has a range of 1,795km with maximum payload. *Country of origin:* Sweden. *Silhouette:* Saab 340A. *Picture:* Saab 340B.

Saab 2000

Power: 2 × GMA 2 100A turboprops *Span:* 24.76m *Length:* 27.93m



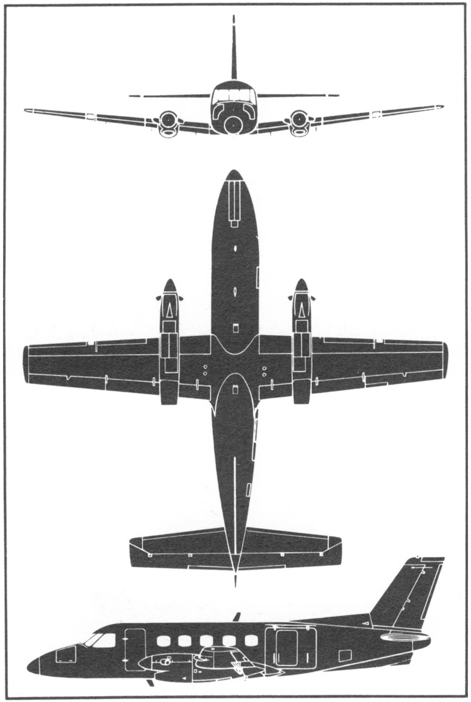


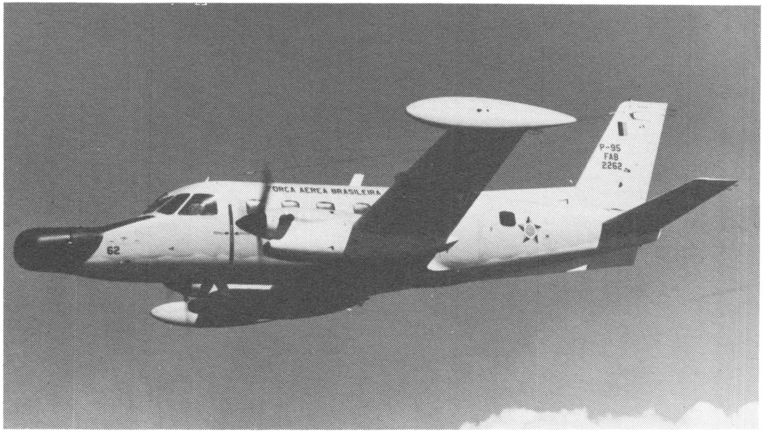
A high-speed 50-seat commuter turboprop, the Saab 2000 flew for the first time in March 1992. Developed from the Saab 340, the 2000 has large 4,152shp engines driving six-blade curved propellers. Maximum cruising speed is 678km/h at 9,450m altitude and range 2,492km. There is widespread sub-contracting abroad, including CASA in Spain for wings, Valmet in Finland for fin, rudder, tailplane and elevators and Westland in the UK for the rear fuselage. By April 1992 the order book stood at 48 plus 146 options. *Country of origin:* Sweden.

EMBRAER EMB-110 Bandeirante

Confusion: Jetstream 31, Merlin II/III

Power: 2 × PT6A turboprops *Span:* 15.32m *Length:* 15.08m

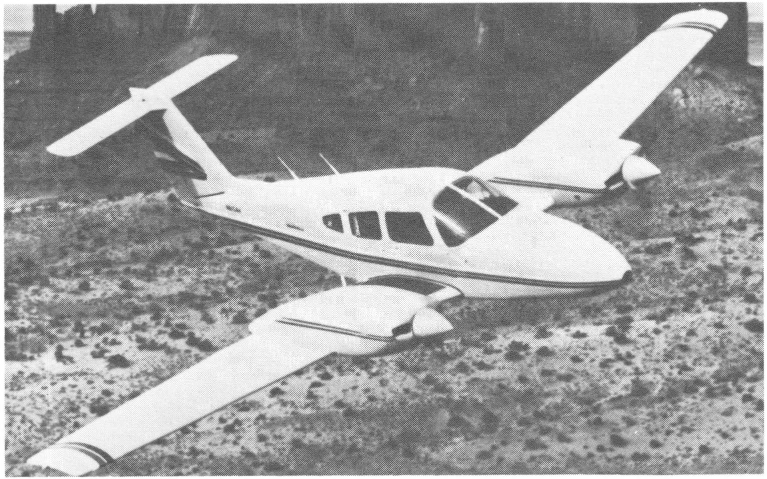


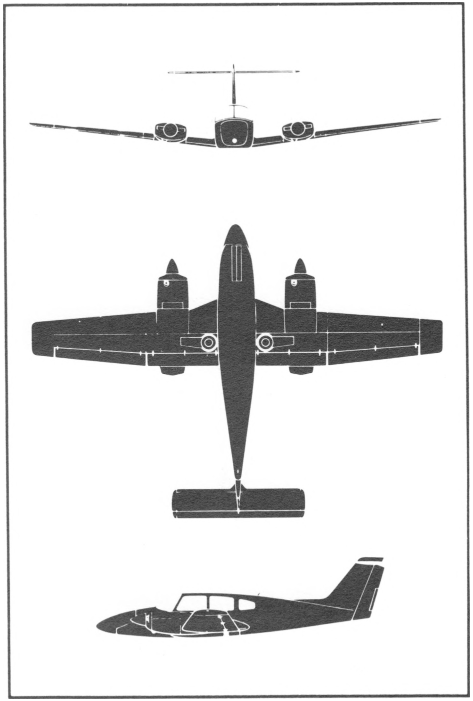


A very successful commuter transport, the EMB-110 Bandeirante seats 21 passengers (in 110P2 form), cruises at 360km/h and has a range of 1,916km. First deliveries went to the Brazilian Air Force in 1973 as the C-95. There are 12 versions of the Bandeirante, including the 110P1 (quick-change passenger transport), B1 (aerial photography), S1 (geophysical survey), K1 (military transport with longer fuselage), 110A (navigation/landing aid calibration), 110E (eight-seat executive transport) and 111 (radar-equipped maritime patrol aircraft). The EMB-110P1A/2A have dihedral tailplanes. A total of 500 Bandeirantes had been produced when production ceased in 1990. *Country of origin:* Brazil. *Silhouette:* EMB-110K1. *Picture:* EMB-111.

Piper PA-44 Seminole

Power: 2 × Lycoming piston engines *Span:* 11.75m *Length:* 8.41m



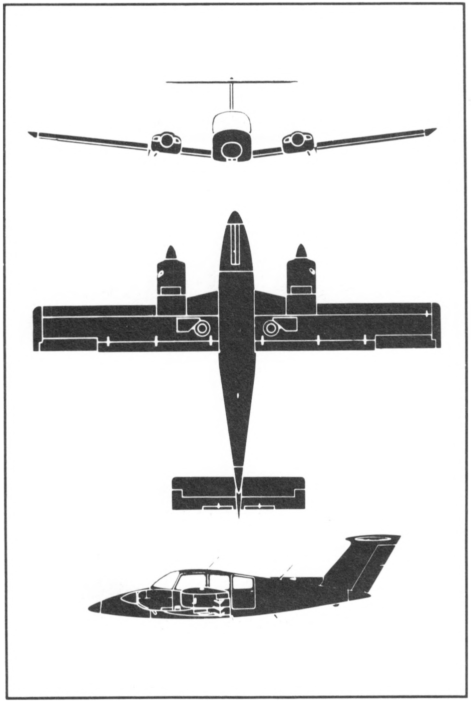


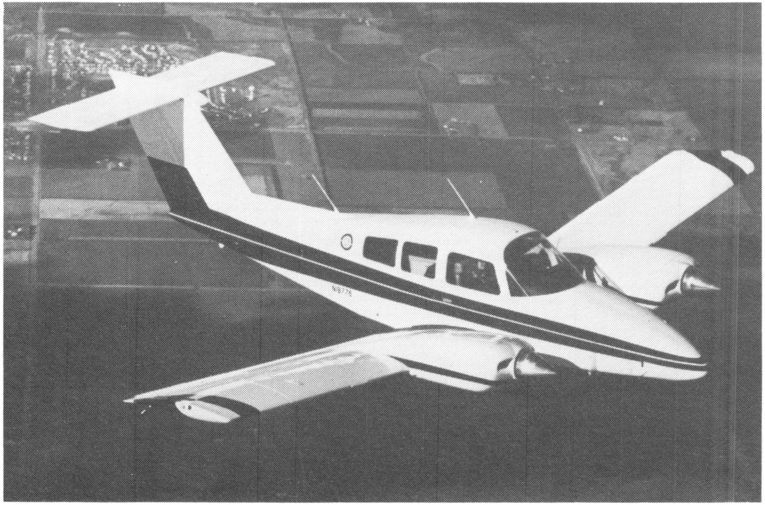
Bearing a close resemblance to the Beechcraft Duchess 76, the T-tail PA-44 Seminole is one of a new generation of American light aircraft intended for training and light transport duties. First flight was in 1976 and deliveries began in the Spring of 1978. Although similar in appearance to other Piper aircraft, the Seminole was in fact a new design. Turbo Seminole is the name given to the turbo-supercharged version. Range is 1,546km and cruising speed 286km/h *Country of origin:* USA. *Silhouette:* Seminole. *Picture:* Turbo Seminole.

Beechcraft Duchess 76

Confusion: Seminole

Power: 2 × Lycoming piston engines *Span:* 11.59m *Length:* 8.84m

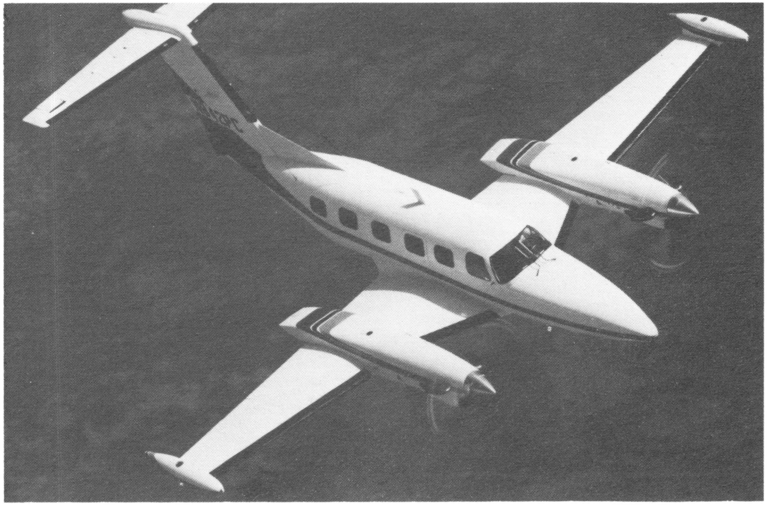


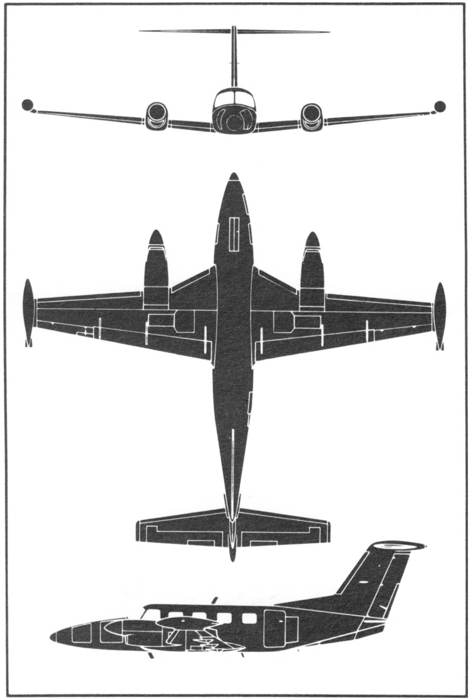


Embodying some parts from the single-engined Beechcraft Sierra, the Duchess 76 is a four-seat T-tail cabin monoplane designed for transport and training. The accent is on low cost and ease of production and an unusual feature is the fitting of pilot doors on both sides of the aircraft. The Duchess first flew in production form in 1977. Several hundred have been delivered. Maximum cruising speed is 298km/h and range is over 1,290km. *Country of origin:* USA.

Piper PA-42 Cheyenne III/IIIA/400

Power: 2 × PT6A or 2 × TPE 331 turboprops *Span:* 14.6m *Length:* 11.58m



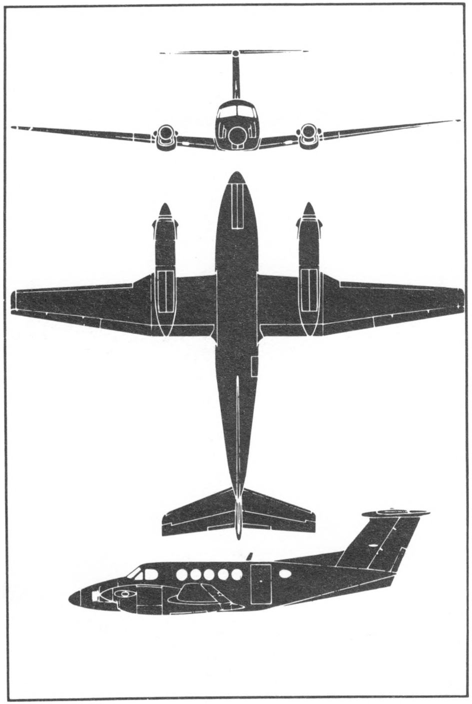


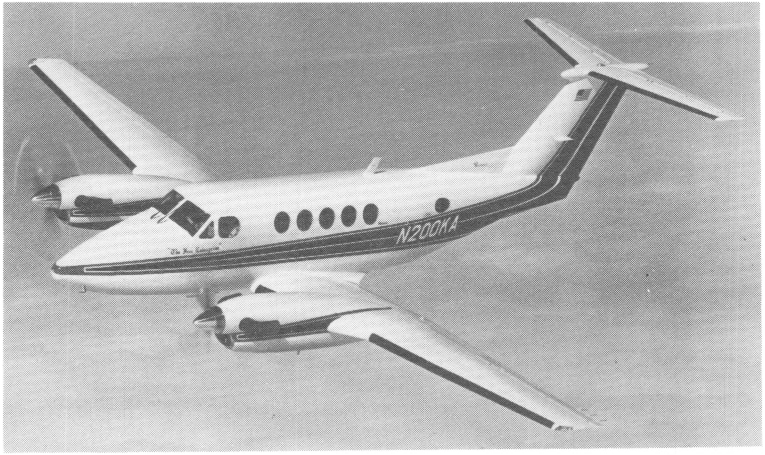
The PA-42 Cheyenne III first appeared in 1979 and differed from the rest of the Cheyenne family in having greater wingspan, longer fuselage, more windows, uprated engines and a prominent T-tail. A higher-powered version, the Cheyenne IIIA went into production in January 1984. Eight passengers are carried and cruising speed is 580km/h. A later variant, the Cheyenne 400 (formerly 400LS) flew in February 1983, powered by Garrett TPE 331 engines. *Country of origin:* USA. *Silhouette:* Cheyenne 400LS. *Picture:* Cheyenne IIIA.

Beechcraft Super King Air 200

Confusion: Cheyenne III, Xingu

Power: 2 × PT6A turboprops *Span:* 16.61m *Length:* 13.34m



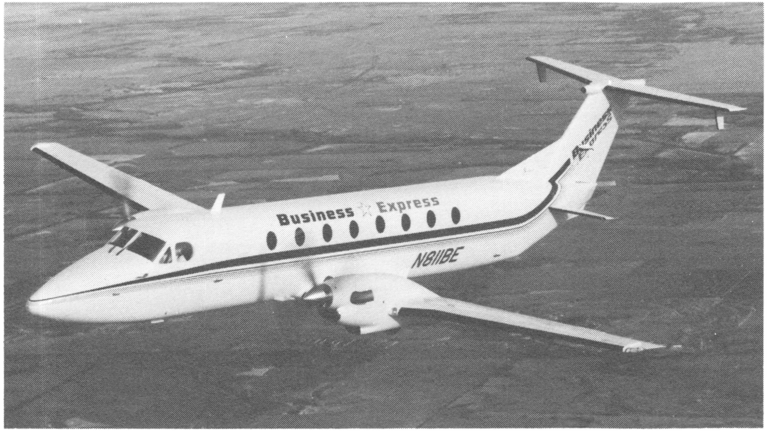


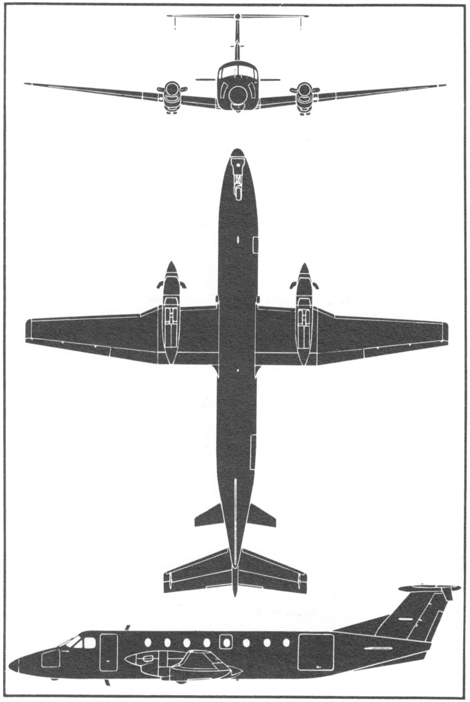
The Super King Air 200 represents a major departure in Beech twin design, with a wing of much higher aspect ratio and a T-tail. The prototype flew in 1972 and deliveries continue. In addition to civil applications as a feederliner/executive aircraft, the type has been ordered by the USAF, US Navy and US Army as the C-12A/C/D/E/F, UC-12B/F/M, RU-21J, RC-12D/H/K. A geographic survey version is the Model 200T and a further variant is known as the Maritime Patrol B200T. The Super King Air 200 cruises at 503km/h and has a range of 3,495km. *Country of origin:* USA. *Silhouette and picture:* Super King Air 200.

Confusion: King Air 200, Brasilia

Beechcraft 1900C

Power: 2 × PT6A turboprops *Span:* 16.61m *Length:* 17.63m



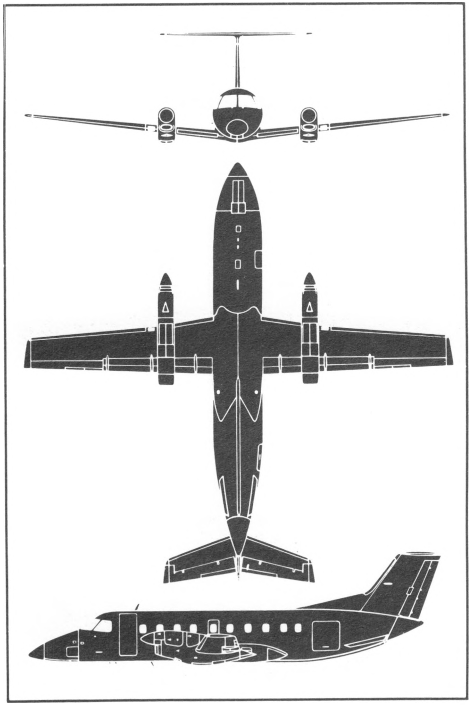


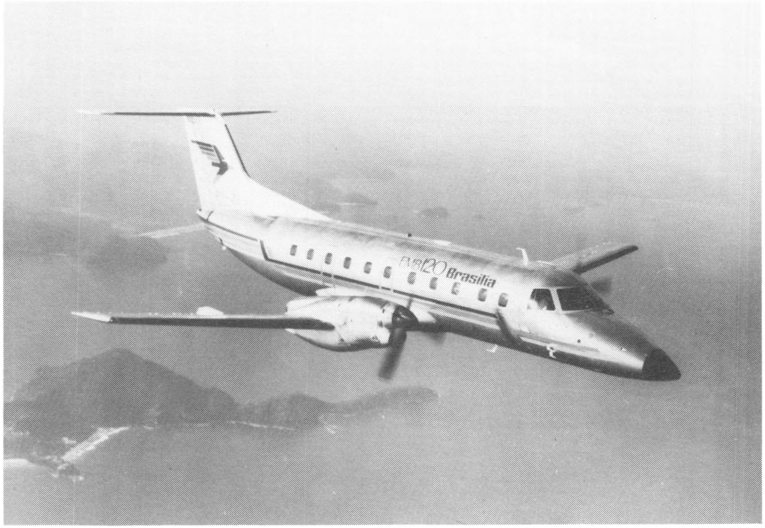
First flown in September 1982, the Beechcraft 1900C twin-turboprop commuter airliner has been produced in three versions. The 1900C Airliner has a cargo door, the 1900C Exec-liner is a business aircraft and the C-12J is a miltary version serving with the US Air National Guard as a replacement for Convair C-131s. In addition, six aircraft have been procured by Egypt for electronic surveillance and maritime patrol. The basic 1900C carries two crew and up to 19 passengers. Maximum cruising speed is 495km/h and range, with 15 passengers, 2,383km. Particular recognition features are the tail-lets under the tail plane and the fixed horizontal tail surfaces on the rear fuselage. Over 220 Beechcraft 1900Cs have been delivered. *Country of origin:* USA.

EMBRAER EMB-120 Brasilia

Confusion: Super King Air, Xingu

Power: 2 × PW115 turboprops *Span:* 19.78m *Length:* 20m



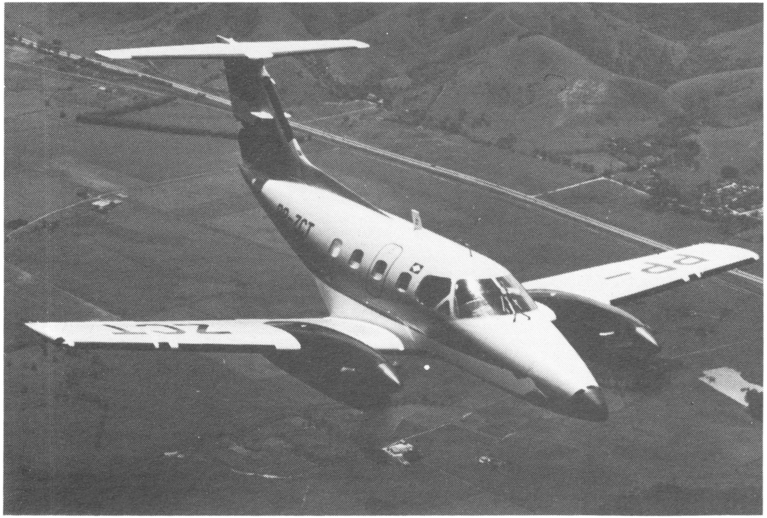


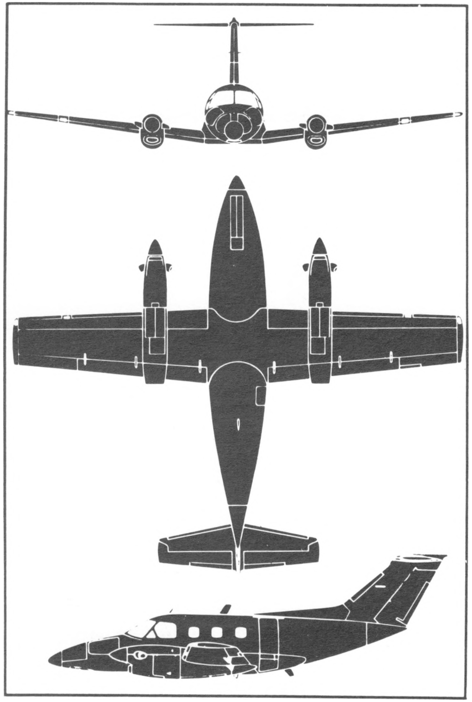
First flown in July 1983, the EMB-120 Brasilia is a twin-turboprop passenger and cargo aircraft. Seating 30, the Brasilia has a cruising speed of 487km/h and a range of 1,112km. Deliveries commenced in mid-1985. Military versions include the C-97 and VC-97 for the Brazilian Air Force. By end 1991, 480 Brasilias had been ordered. *Country of origin:* Brazil.

Confusion: Super King Air 200, Pucara, Brasilia

EMBRAER EMB-121 Xingu

Power: 2 × PT6A turboprops *Span:* 14.05m *Length:* 12.25m



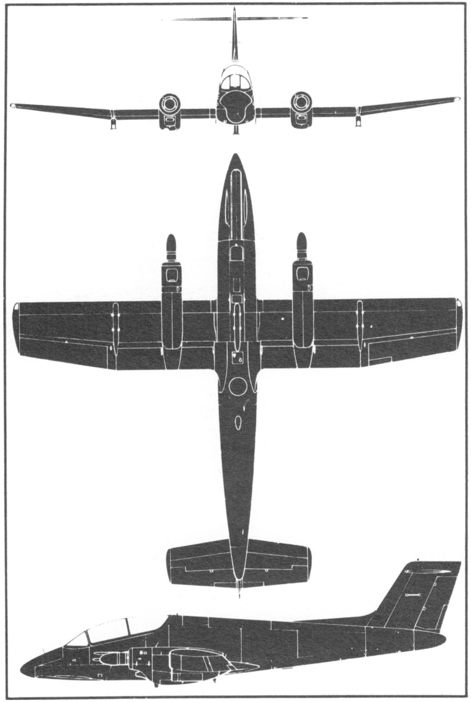


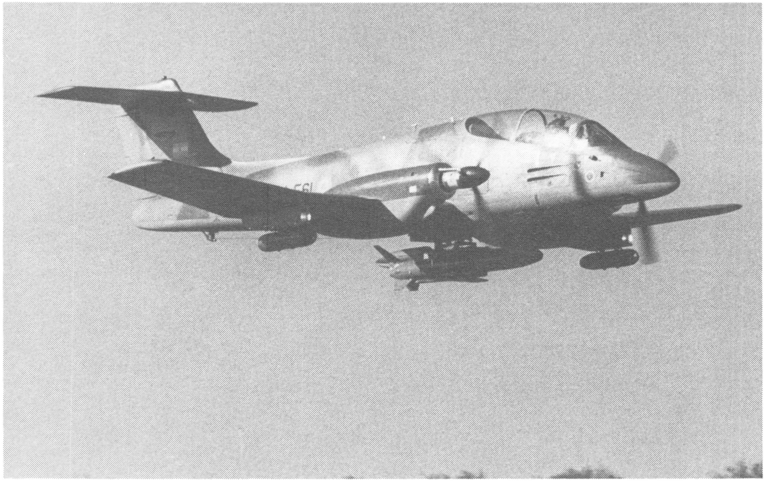
A pressurised five/six-passenger business aircraft, the EMB-121 Xingu first flew in 1976 and deliveries began in 1977. In addition to civilian sales, the Xingu has been bought by the Brazilian Air Force. Maximum cruising speed is 489km/h and range is 2,160km. The uprated Xingu II flew in 1981. A total of 105 Xingus were produced before the line closed in August 1987. *Country of origin:* Brazil. *Silhouette and picture:* Xingu I.

FMA IA 58 Pucara

Confusion: Xingu, Super King Air 200

Power: 2 × Astazou turboprops *Span:* 14.5m *Length:* 14.25m



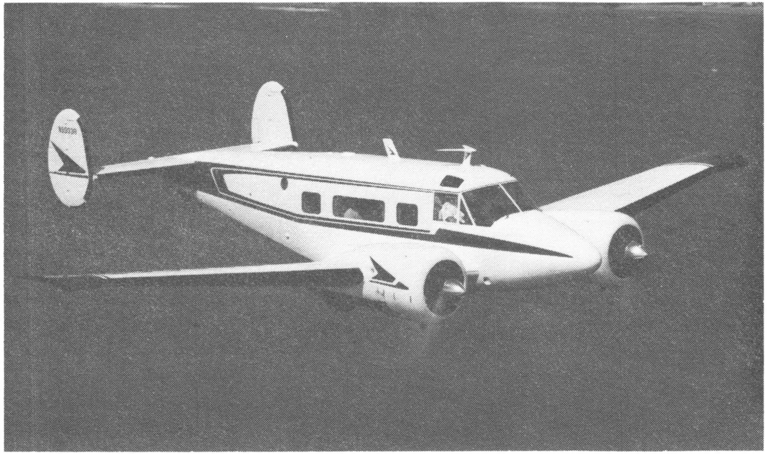


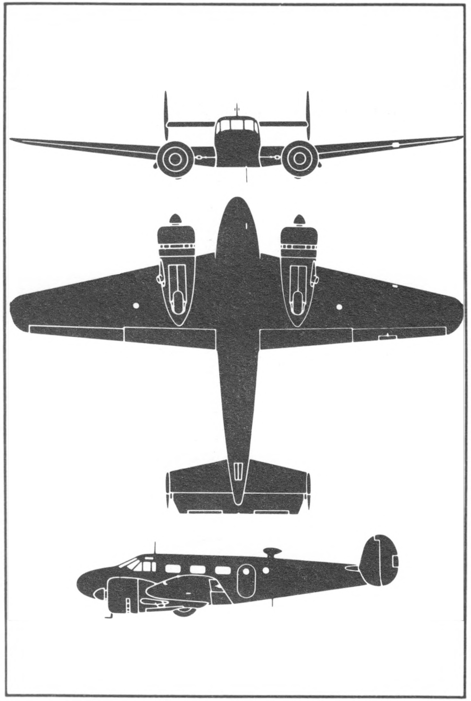
The IA 58 Pucara counter-insurgency (co-in) aircraft, first flew in 1969. Highly manoeuvrable, the Pucara is capable of using very short rough fields. The Pucara was widely used in the Falklands conflict in 1982. Two 20mm cannon and four machine guns are fitted in the fuselage and 1,500kg of bombs, rockets or missiles are carried on one underfuselage and two underwing pylons. The Pucara is in service with the Argentinian Air Force and 108 were built. Maximum speed is 500km/h and range is 3,042km. *Country of origin:* Argentina.

Confusion: Huanquero

Beech 18

Power: 2 × R-985 piston engines *Span:* 15.14m *Length:* 10.7m



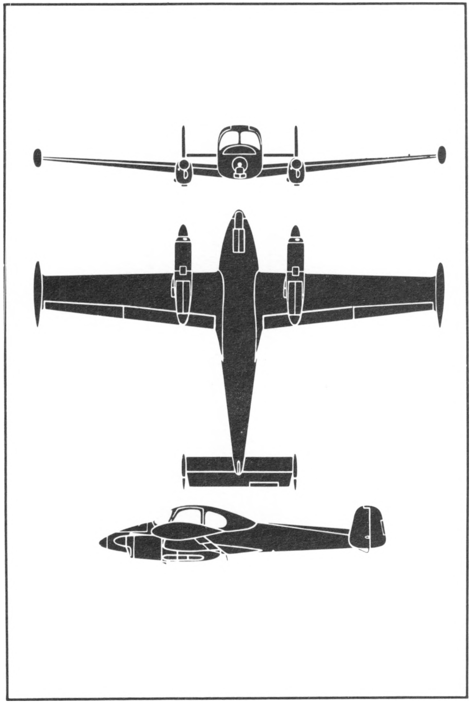


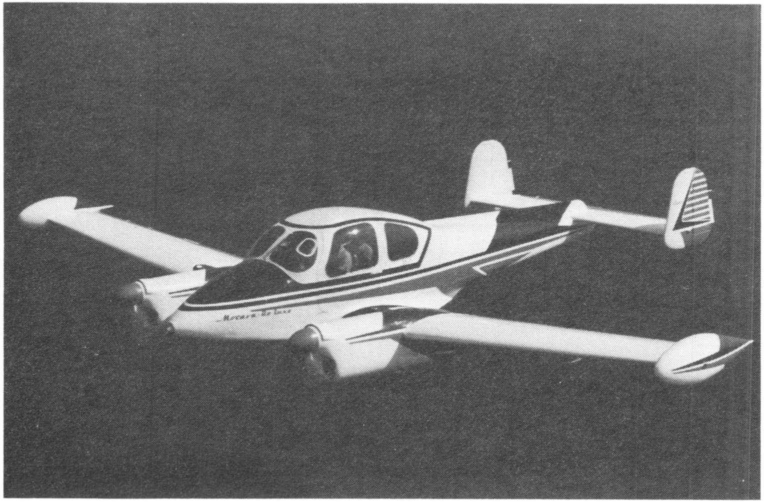
The original Beech 18 entered production in 1937 and several thousand had been completed by the end of the Second World War. Civil manufacture recommenced after the war and development led to the E18, G18 and H18 Super models, of which over 750 were built. Compared with early marks, the later 18s have extended rectangular wingtips, various nose lengths and changed window shapes. The H18 Super 18 carries nine passengers for 2,460km. Long-nose turboprop conversions of the Beech 18 by Hamilton Aviation are called the Westwind III and Westwind II STD. *Country of origin:* USA. *Silhouette:* Beech 18. *Picture:* H18 Super 18.

Let L-200 Morava

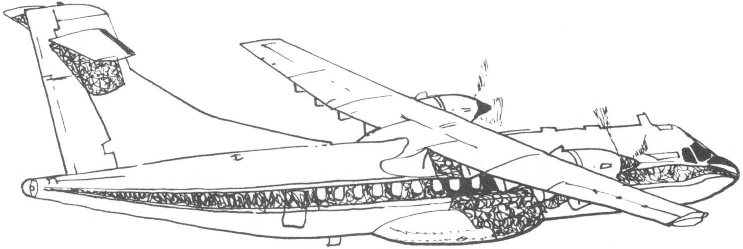
Confusion: —

Power: 2 × M337 piston engines *Span:* 12.31m *Length:* 8.61m

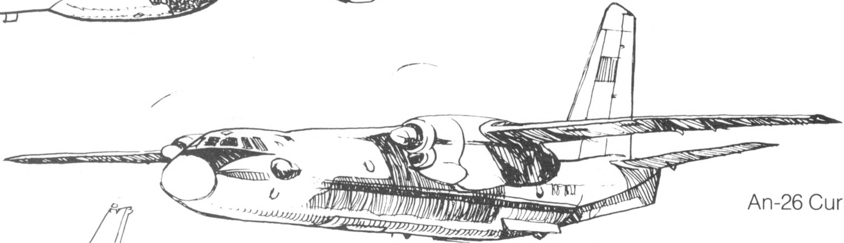




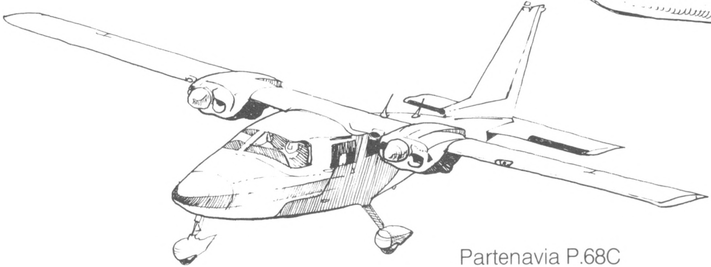
The successor to the Aero 145, the L-200 Morava is a four/five-seat light business aircraft first flown in 1957. Over 400 have been built and many have been exported within eastern Europe. The three versions—the L-200, L-200A and L-200D—are all similar in external appearance. The Morava can be converted to carry two stretchers. Cruising speed is 256km/h and range 1,710km. *Country of origin:* Czechoslovakia. *Silhouette and picture:* L-200.



ATR 42



An-26 Curl

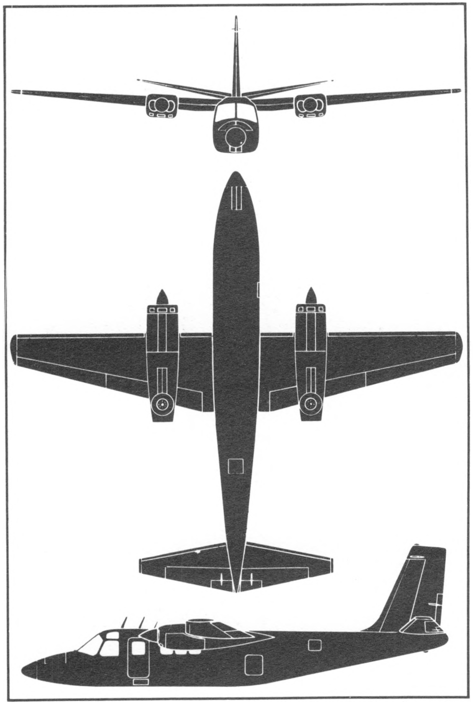


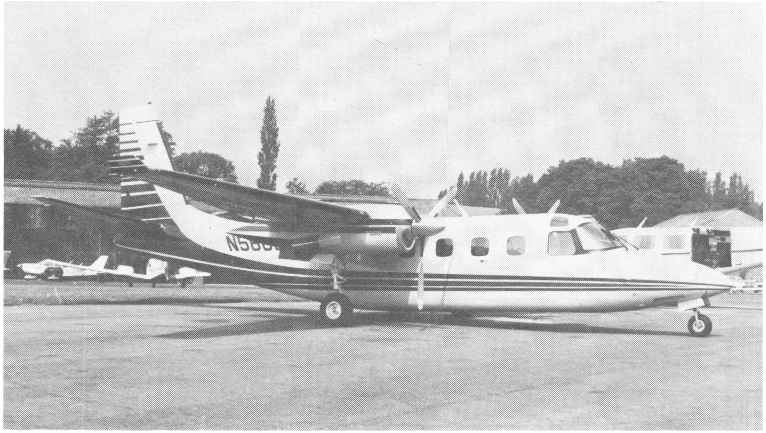
Partenavia P.68C

Gulfstream Commander

Confusion: Turbolet

Power: 2 × Lycoming piston engines or 2 × TPE 331 turboprops *Span:* 14.2m *Length:* 13.1m



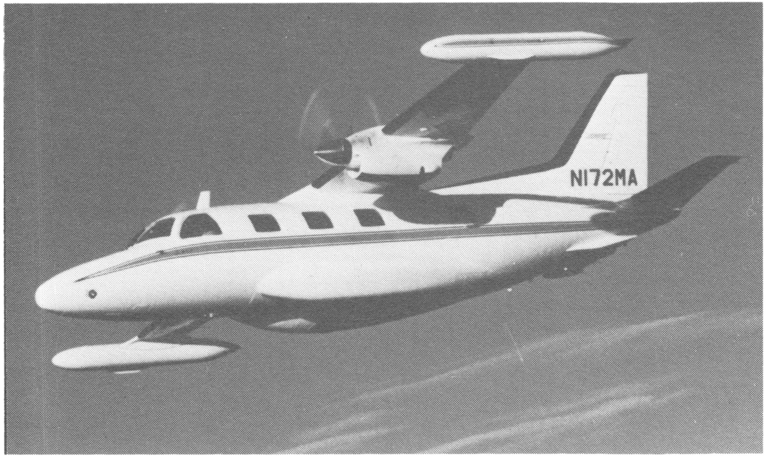


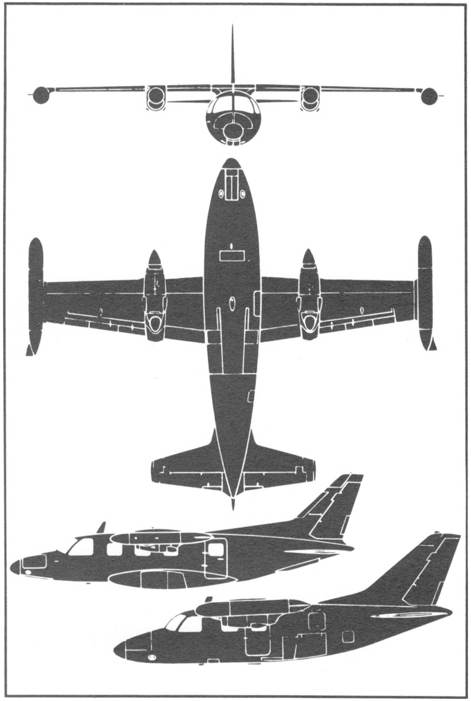
Beginning in 1948 with the Aero Commander, the Commander range is very extensive and many hundreds have been produced. From the 520 six-seater the design progressed to the Grand Commander with a longer fuselage and accommodation for nine passengers. Also in the series are the Shrike Commander four-seater, the shorter-wing, pressurised, eight-seat Hawk Commander and a Garrett AiResearch turboprop version of the Hawk, the Commander Jetprop 840. Other versions are the Jetprop 900, 980, 1000 and 1200. The 840 has a range with maximum payload of 1,985km at 460km/h. *Country of origin:* USA. *Silhouette:* Aero Commander. *Picture:* Commander Jetprop 980.

Confusion: Turbolet

Mitsubishi MU-2

Power: 2 × TPE331 turboprops *Span:* 11.94m *Length:* 12.02m



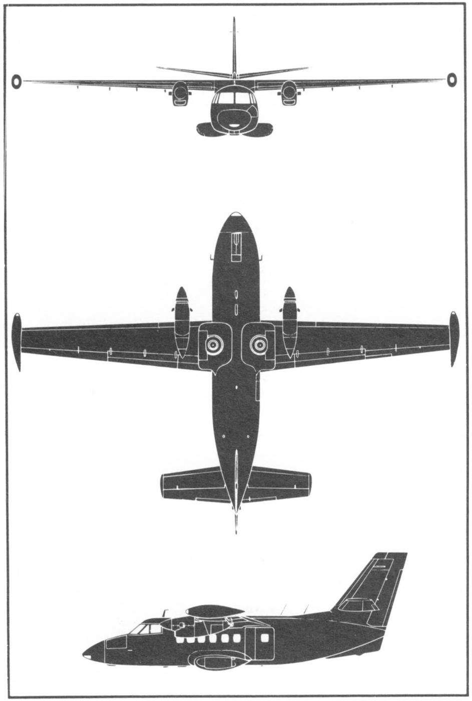


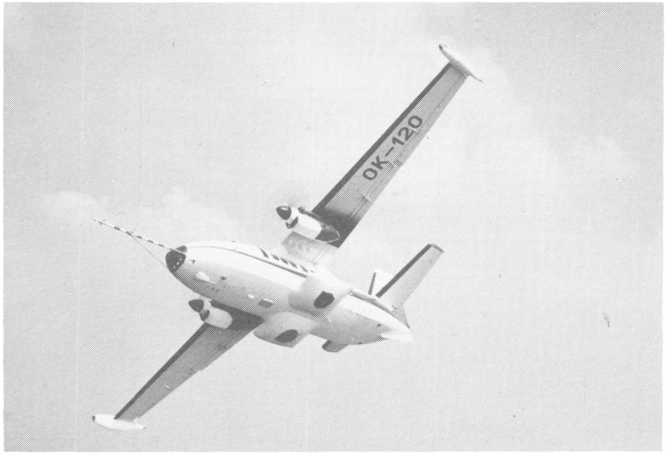
A utility transport first flown in 1963, the MU-2 seats up to 11 passengers. Various versions, from the MU-2A to P, vary in power, weights and performance. The MU-2E is used by the Japan Air Self-Defence Force for rescue work. Wingtip tanks are standard. MU-2s were later assembled in the United States at a plant in Texas. The MU-2N has a cruising speed of 480km/h and a range of 2,330km. The MU-2N is called the Marquise and the MU-2P the Solitaire. Production ceased in March 1986 after 755 MU-2s had been built. *Countries of origin:* Japan/USA. *Main silhouette:* MU-2B; *upper side view:* MU-2J. *Picture:* MU-2J.

Let L-410 Turbolet

Confusion: MU-2, Do 228

Power: 2 × M601 or 2 × PT6A turboprops *Span:* 17.48m *Length:* 13.61m



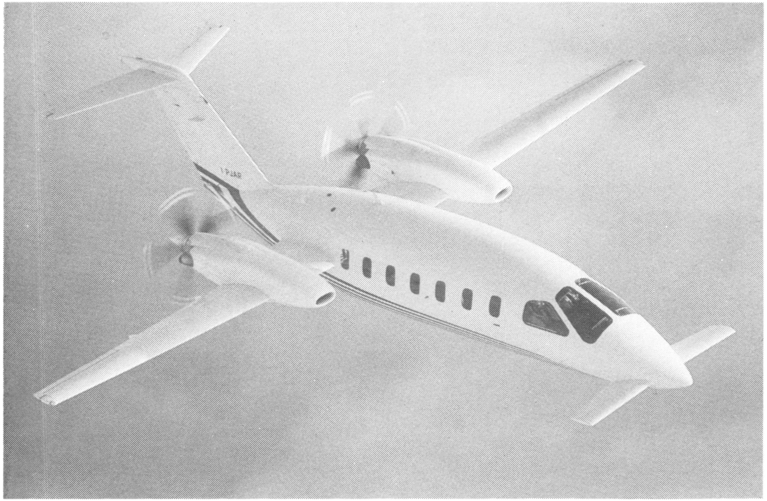


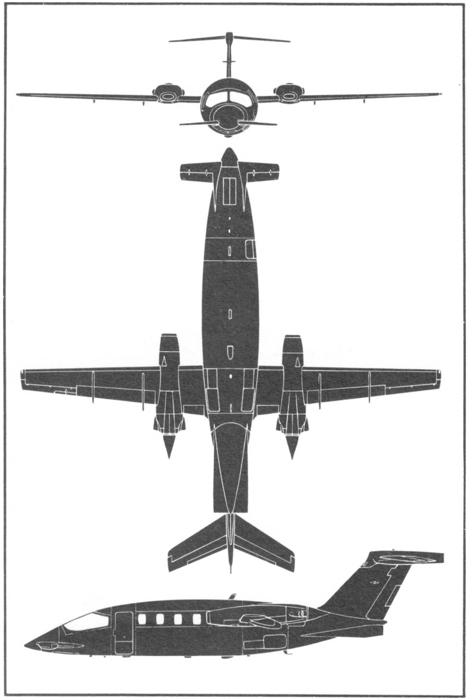
A light passenger/freight transport, the L-410 Turbolet first flew in 1969. Cruising at 380km/h for up to 200km, the Turbolet carries 17/19 passengers. The first production version, the L-410A, is powered by American PT6A engines, while the L-410M has two Czech M601A turboprops. A survey/photographic version, the L-410AF, has a large glazed nose on which is mounted a non-retractable nosewheel. Current production model is the L-410UVP-E, with increased span, larger fin and tailplane dihedral. Over 1,000 Turbolets have been built. *Country of origin:* Czechoslovakia. *Silhouette:* L-410UVP-E. *Picture:* L-410UVP.

Confusion: P.166

Piaggio P.180 Avanti

Power: 2 × PT6A turboprops *Span:* 13.84m *Length:* 14.17m

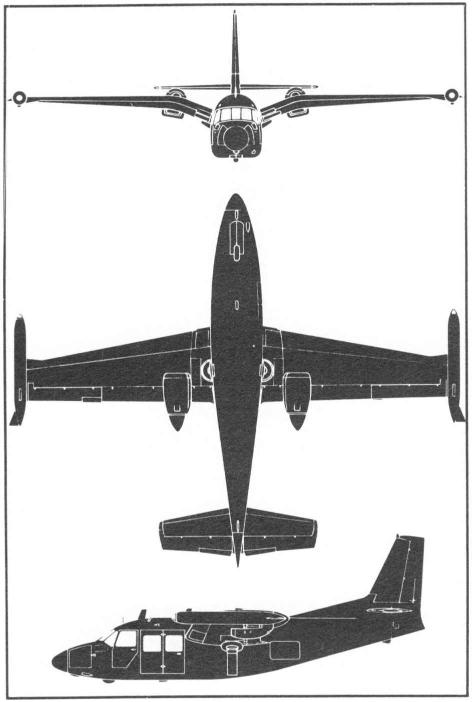


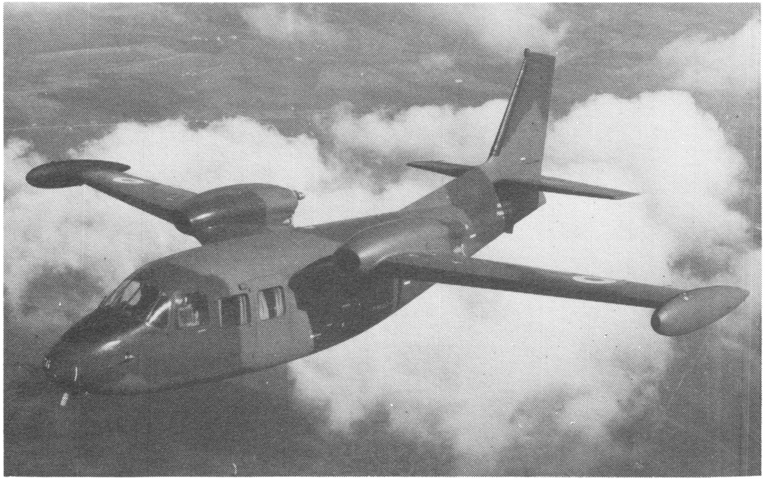


The P.180 Avanti is unusual in that it is virtually a triplane – the wing, tailplane and foreplane all generating lift. First flight of this five/nine passenger corporate transport took place in September 1986 and first deliveries took place in 1990. For three years Gates Learjet was a partner in the project but then withdrew. The Avanti is also assembled by Duncan Piaggio in the USA. The Avanti has an economical cruising speed of 593km/h and range, with four passengers, of 3,335km. *Country of origin:* Italy.

Piaggio P.166 *Confusion:* MU-2

Power: 2 × Lycoming piston engines or 2 × Lycoming turboprops *Span:* 14.69m *Length:* 11.9m



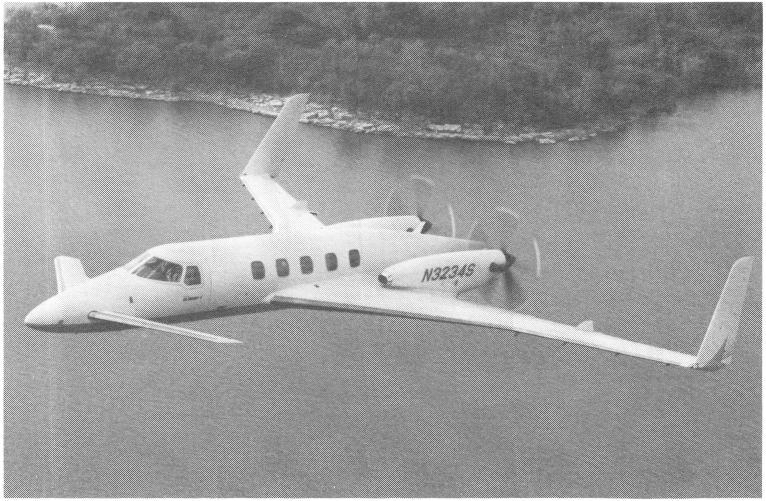


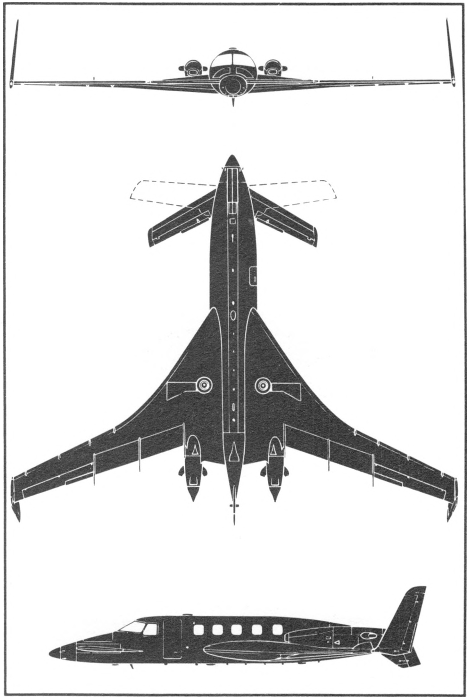
Produced in large numbers, the P.166 with two pusher engines was first flown in 1957. This light transport, seating up to nine passengers, has been built in both military and civil forms. Current version is the P.166-DL3 with turboprops, which first flew in 1976. Wingtip tanks are fitted as standard. A maritime surveillance version is known as the P.166-DL3-MAR. Economical cruising speed of the -DL3 is 300km/h and range with maximum payload 741km. *Country of origin:* Italy. *Silhouette:* P.166-DL3. *Picture:* P.166M.

Confusion: —

Beechcraft Starship 1

Power: 2 × PT6A turboprops *Span:* 16.6m *Length:* 14.05m



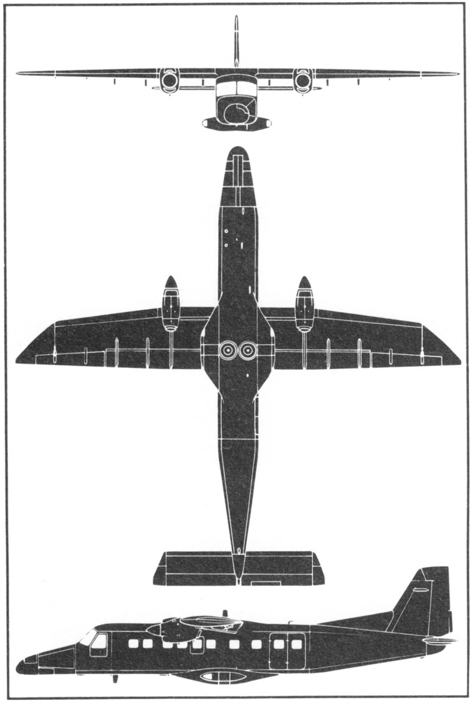


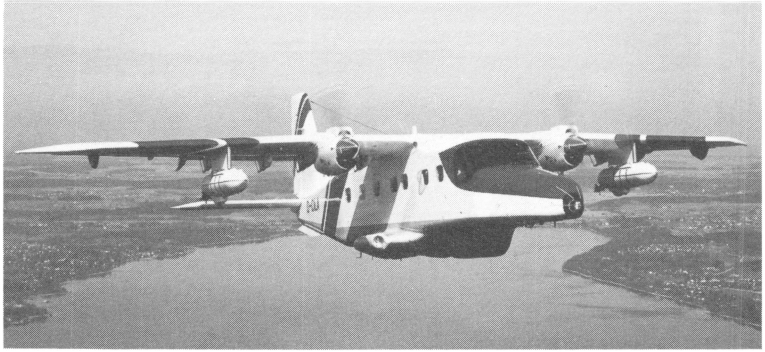
A very unusual canard design, the Beechcraft Model 2000 Starship 1 is an eight-seat business aircraft made out of composite materials. Powered by two pusher PT6A turboprops, the Starship 1 has a crescent wing, endplate fins and variable geometry foreplanes. First flight of a full scale prototype was in February 1986 and first delivery was due in 1990. Maximum take-off weight is 6,350kg, economical cruising speed 500km/h and range 4,032km. *Country of origin:* USA.

Dornier Do 228

Confusion: Frégate, Turbolet

Power: 2 × TPE331 turboprops *Span:* 16.97m *Length:* (-200): 16.55m



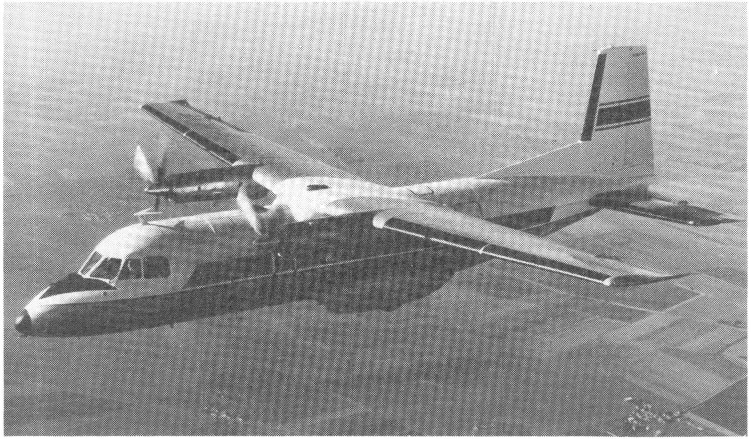


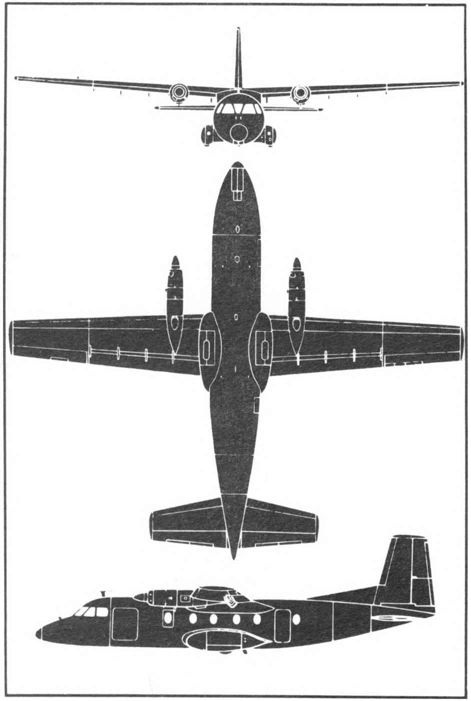
The Dornier Do 228 commuter transport is a combination of a new-technology wing with the modified fuselage of the Do 128 and a retractable undercarriage. The basic Do 228-100 has a length of 15.03m and seats 15 passengers, while the -200 is longer and seats 19. The 228-100 went into service in Norway in the Summer of 1982, following first flights by the -100 and -200 in 1981. The 228 is being licence-built in India. There are two maritime patrol versions A and B on offer. Economical cruising speed is 332km/h and range (Do228-200) is 1,150km. *Country of origin:* Germany. *Silhouette:* -200. *Picture:* 228 Maritime version A.

Confusion: Turbolet

Aerospatiale N 262/Frégate

Power: 2 × Bastan turboprops *Span:* 21.9m *Length:* 19.28m



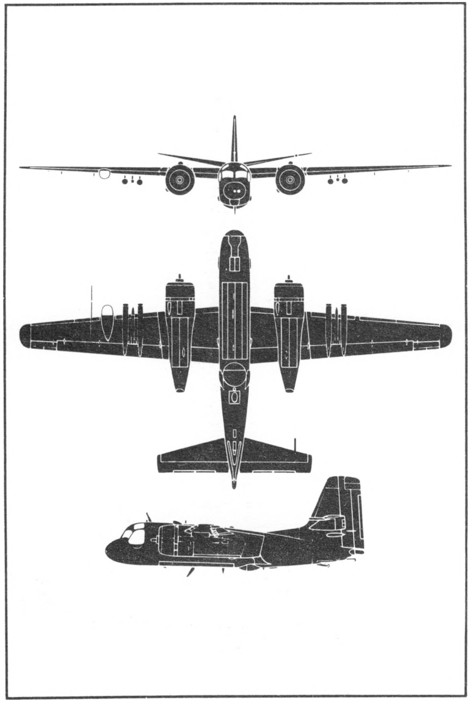


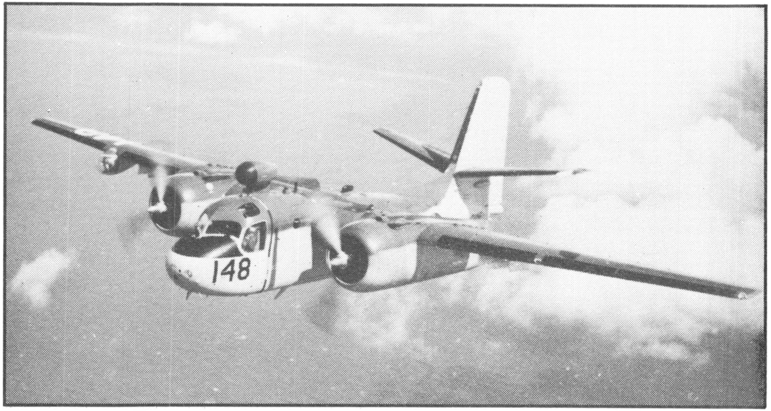
Descended from an earlier unpressurised transport, the Nord N 260 Super Broussard, the pressurised N 262/Frégate short-range airliner is used by civil and military operators. First flown in 1962, the 262 has been produced in four series: A, B, C and D. Only four Bs were built and the standard basic production version was the 262A. A few Series C with more powerful engines were built; military counterpart of the C is the Series D for the French Air Force. The 262C cruises at 397km/h over a range of 2,400km with 26 passengers. *Country of origin:* France. *Silhouette and picture:* Series C.

Grumman S-2 Tracker/CD-1 Trader

Confusion: —

Power: 2 × R-1820 piston engines *Span* (S-2D to -2G): 22.13m *Length:* 13.26m



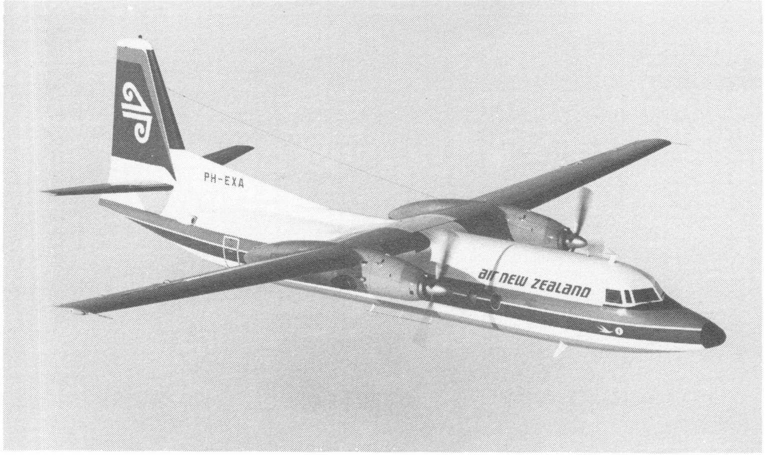


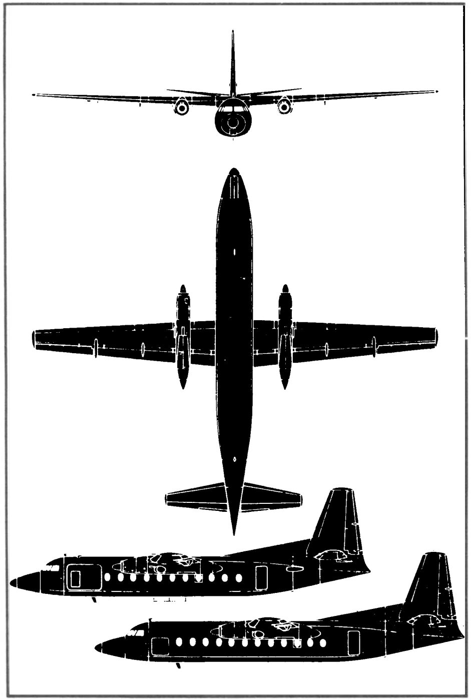
Used on land or aboard aircraft carriers, the Grumman S-2 Tracker is an anti-submarine aircraft. A carrier on-board delivery version, the C-1 Trader, can seat nine passengers. The Tracker first flew in 1953 and carries homing torpedoes, depth bombs and depth charges internally and torpedoes, rockets or bombs under the wings. Various versions were built, from the S-2A to the -2G, and over 1,000 of the type were produced. With a normal crew of four, the Tracker has a maximum speed of 426km/h and nine hours' endurance. Non-US Tracker operators include Argentina, Turkey, Peru, Brazil, South Korea and Taiwan. *Country of origin:* USA. *Silhouette:* S-2D. *Picture:* S-2A.

Confusion: 'Coke', 'Curl', Tracker

Fokker F27 Friendship

Power: 2 × Dart turboprops *Span:* 29m *Length* (Mk 500): 25.06m

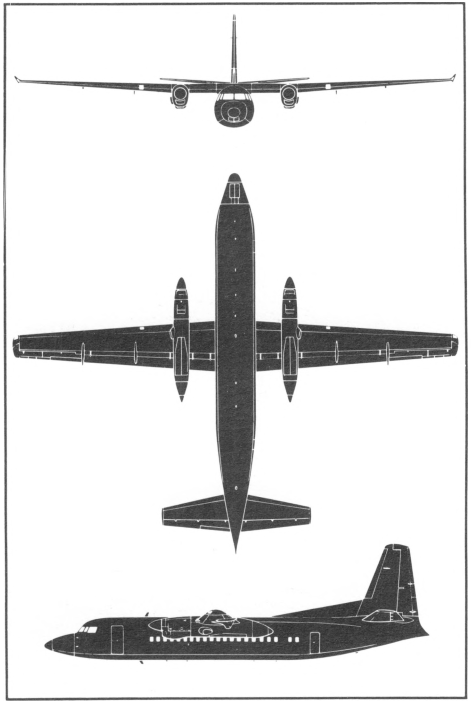


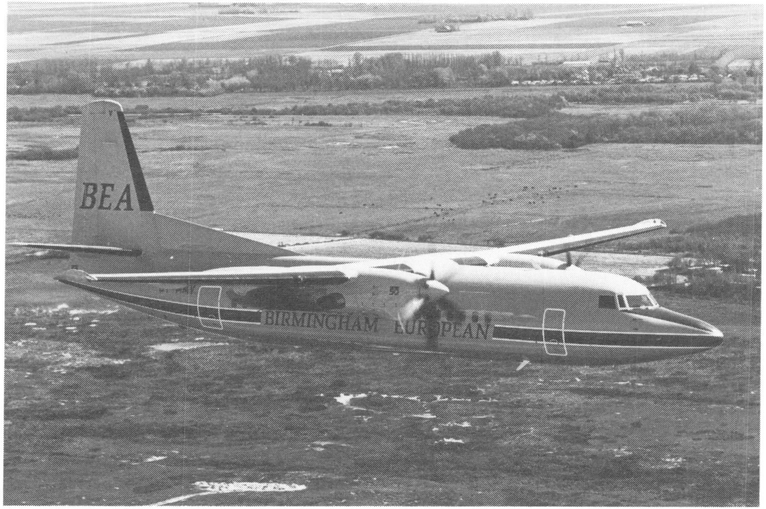


Orders for the F27 Friendship short/medium-haul airliner totalled over 786 when production ceased in 1986. First flown in 1955 the Friendship was built under licence in the USA as the FH-227. Variants are the Mks 100, 200, 300, 400/600 and the long-fuselage, 52-passenger 500. The Mk 500 also has a large side freight door. Friendships are in use as military transports. The Mk 500 has a cruising speed of 480km/h and a range of 1,741km. *Country of origin:* Netherlands. *Main silhouette:* Mk 500; *upper side view:* FH-227.

Fokker 50 *Confusion:* F-27

Power: 2 × PW125 turboprops *Span:* 29m *Length:* 25.24m



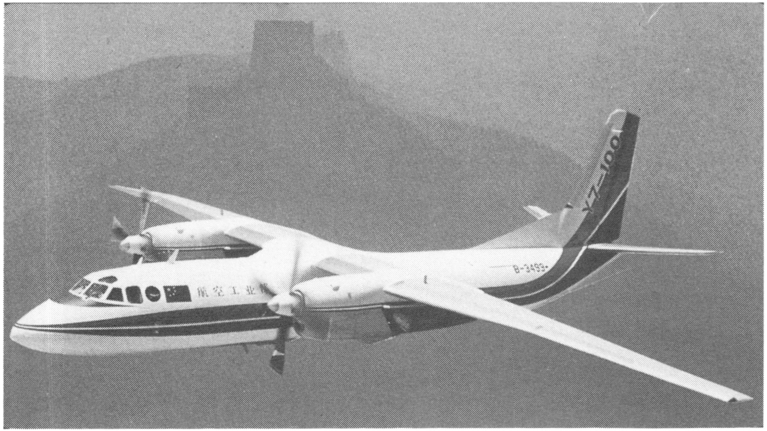


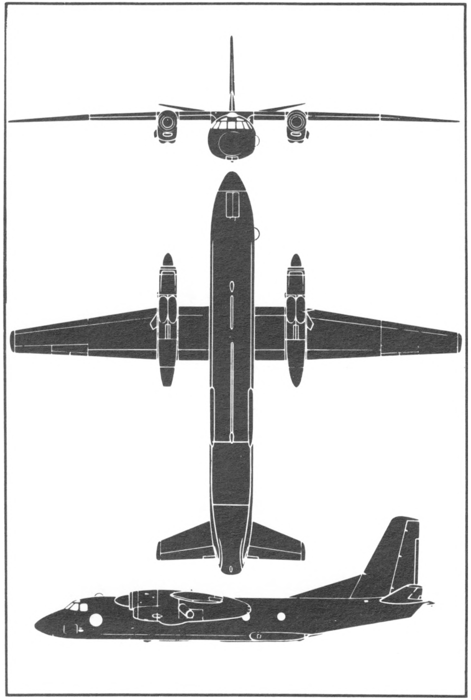
The follow-on to the widely used Fokker F-27 Friendship, the Fokker 50 has new engines in revised nacelles, six-blade propellers and more cabin windows. Widespread use is made of composite materials. Seating up to 58 passengers in a high density layout, the Fokker 50 cruises at 522km/h and has a normal range of 1,163km. The Fokker 50 first flew in December 1985 and over 130 have been ordered. Two maritime variants are on offer, the Maritime Mk 2 and the Maritime Enforcer Mk 2. *Country of origin:* Netherlands.

Confusion: Friendship, 'Clank', 'Cline'

Antonov An-24 'Coke'/An-26 'Curl'

Power: 2 × Ivchenko turboprops *Span:* 29.2m *Length:* 23.53m



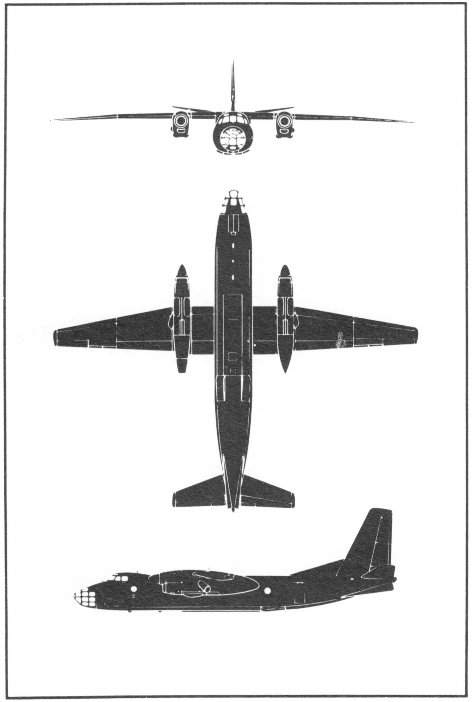


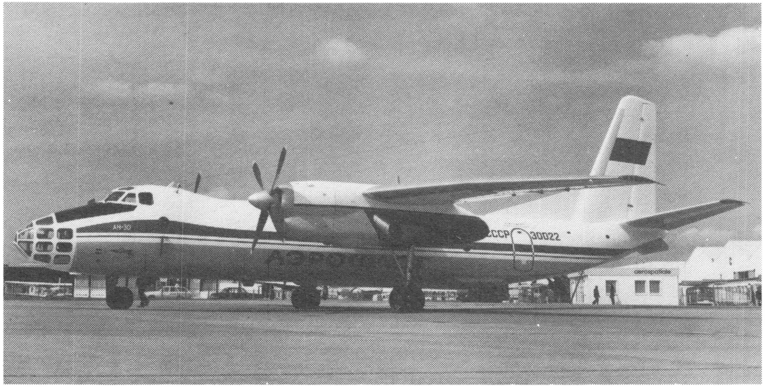
Over 1,000 Antonov An-24 transports, code-named 'Coke', were built after the type first flew in 1960. Initially fitted with 44 seats, the aircraft was developed to accommodate 50 passengers as the -24V. A subsequent variant was fitted with higher powered engines and modified wing. An underfuselage rear door is fitted to the -24T, while the -24RT and -24RV each have an auxiliary turbojet in the starboard nacelle. The An-26 'Curl' is a development with an upswept rear fuselage and enlarged rear loading ramp. A signals intelligence variant is code-named 'Curl-B'. The An-24 is in production in China as the Y7-100 with Western avionic equipment and winglets at the wingtips. *Country of origin:* Ukraine. *Silhouette:* An-26. *Picture:* Y7-100.

Antonov An-30 'Clank'

Confusion: 'Coke', 'Curl', 'Cline', Friendship

Power: 2 × Ivchenko turboprops *Span:* 29.2m *Length:* 24.26m



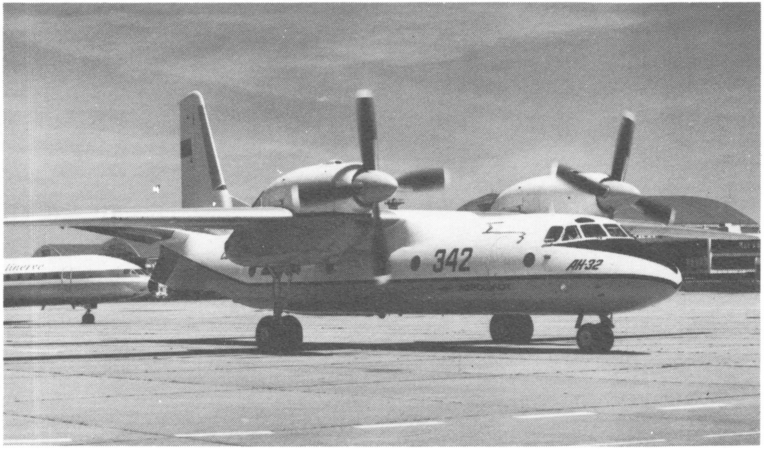


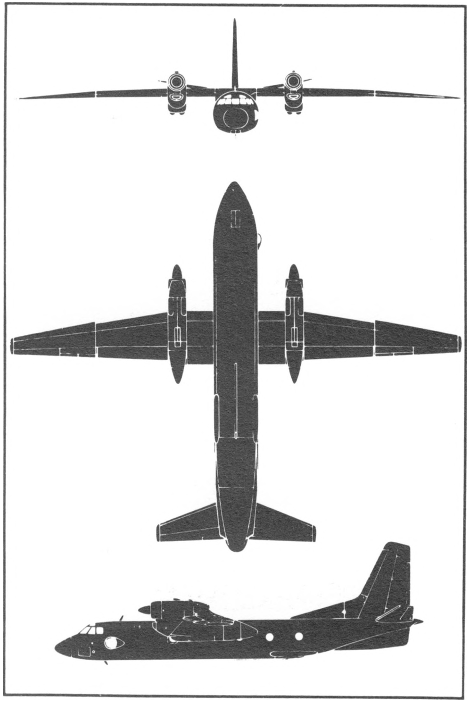
Designed for aerial survey, the An-30, code-named 'Clank', is a direct development of the An-24 'Coke'. It is fitted with a longer glazed nose and a raised flight deck. Cameras are mounted in the fuselage, which has its own darkroom and a computer controls the flight profile. The An-30 has fewer windows than the passenger versions of the An-24. An auxiliary turbojet is mounted in the starboard nacelle. This is used for engine starting and for take-off, climb and cruise power in the event of main engine failure. The An-30's primary role is aerial photography for map-making, for which it is equipped with large survey cameras mounted above four apertures in the cabin floor. The openings are covered by doors which can be opened under remote-control from the crew photographer's station. *Country of origin:* Ukraine.

Confusion: 'Coke', 'Curl', 'Clank', Friendship

Antonov An-32 'Cline'

Power: 2 × Ivchenko turboprops *Span:* 29.2m *Length:* 23.8m



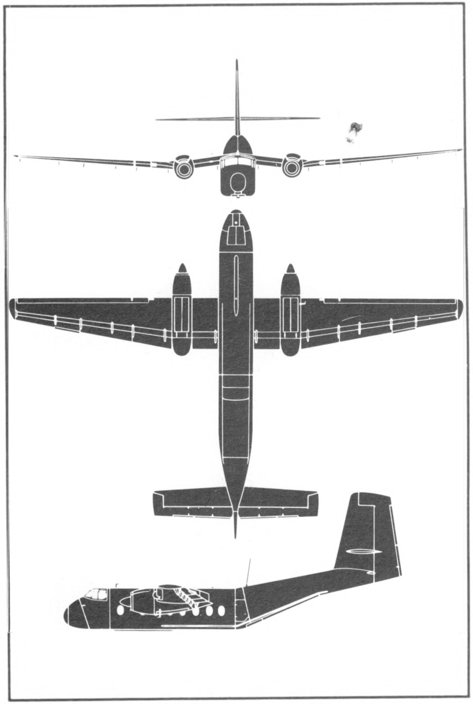


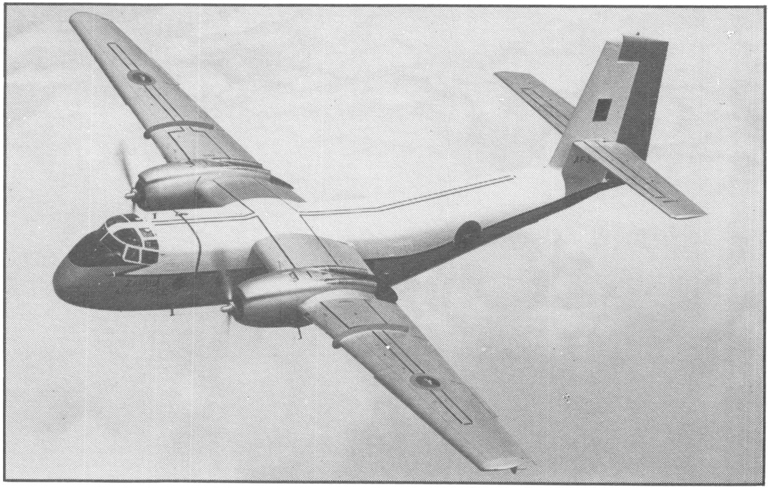
A major increase in power is the main feature of the An-32 'Cline', which is a direct development of the An-24 'Coke'. Main differences are bigger engine nacelles mounted over the wings and a greatly enlarged ventral fin. Higher power gives the 'Cline' better airfield performance, particularly at high altitudes and temperatures. Payloads include 39 passengers, 30 parachutists or 24 stretchers. A rear loading door is fitted. Range is 2,200km. Versions are available for firefighting, surveillance, agricultural and air ambulance work. *Country of origin:* Ukraine.

DH DHC-4A Caribou

Confusion: Buffalo

Power: 2 × R-2000 piston engines *Span:* 29.15m *Length:* 22.13m



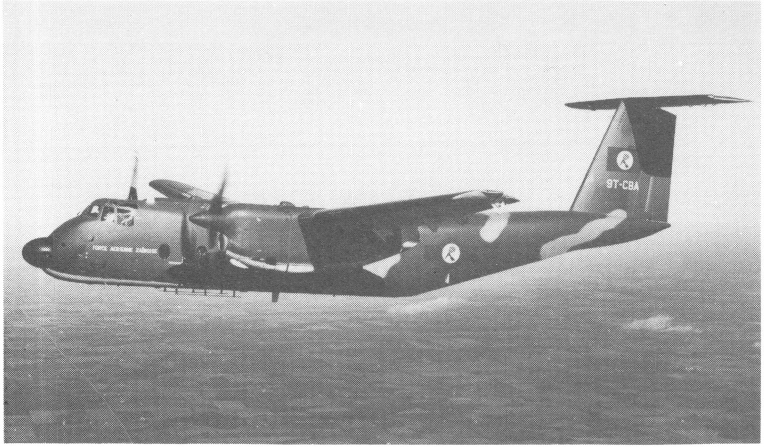


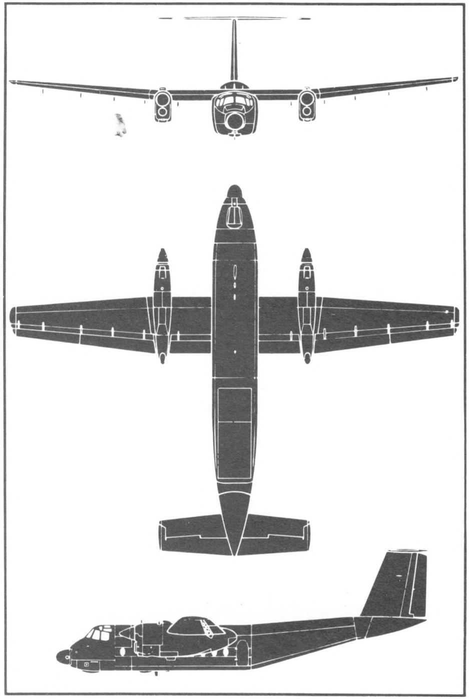
A short take-off and landing (STOL) utility transport, the DHC-4A Caribou first flew in 1958. The civil variant accommodates 30 passengers, while in military service 32 troops, 3,050kg of freight, two jeeps or stretchers can be carried. Under the upswept rear fuselage there is a large single loading door. In Canadian Forces service the Caribou is known as the CC-108. The US Army ordered 159 CV-2 Caribous. These aircraft were later taken over by the USAF, which designated them C-7A. Range is 2,103km and cruising speed 293km/h. *Country of origin:* Canada.

Confusion: Caribou

DH DHC-5 Buffalo/Transporter

Power: 2 × CT64 turboprops *Span:* 29.26m *Length:* 24.08m



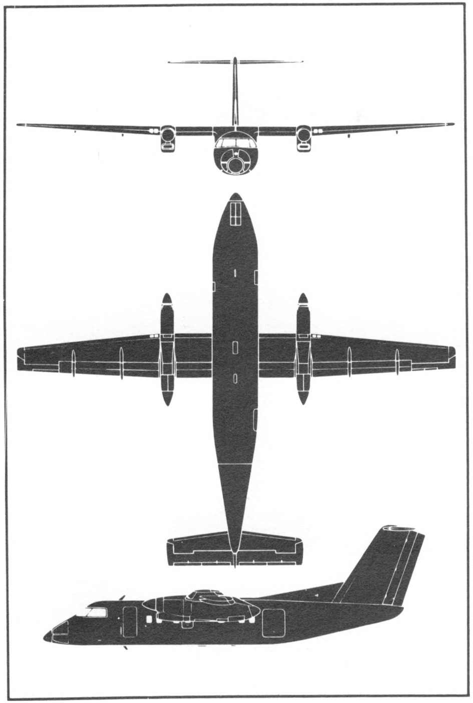


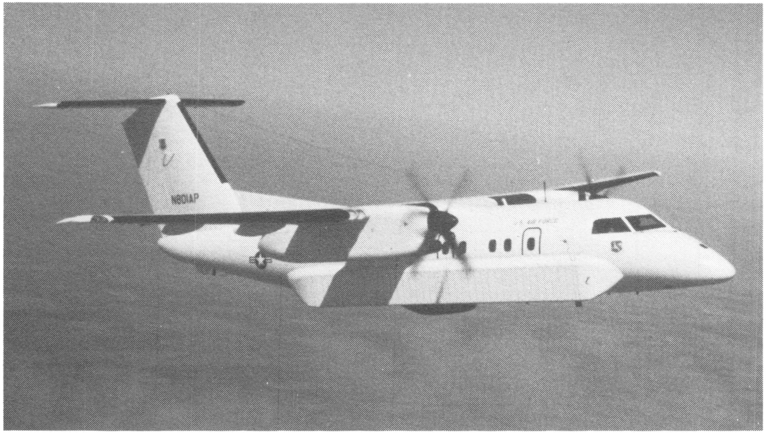
Originally called the DHC-5 Caribou II, the STOL turboprop development of the Caribou was renamed Buffalo. A military transport, the Buffalo carries 41 troops, jeeps, stretchers or freight loaded through an underfuselage rear door. The Caribou first flew in 1964. In USAF service it is known as the C-8A, and as the CC-115 with the Canadian Forces. Specially equipped Buffalos are used for maritime patrol. Range is 1,112km at a maximum cruising speed of 420km/h. The 44-seat civil passenger/cargo version of the DHC-5D Buffalo is the DHC-5E Transporter. *Country of origin:* Canada.

DH DHC-8 Dash 8

Confusion: Buffalo

Power: 2 × PW120 turboprops *Span:* 25.89m *Length:* 22.25m



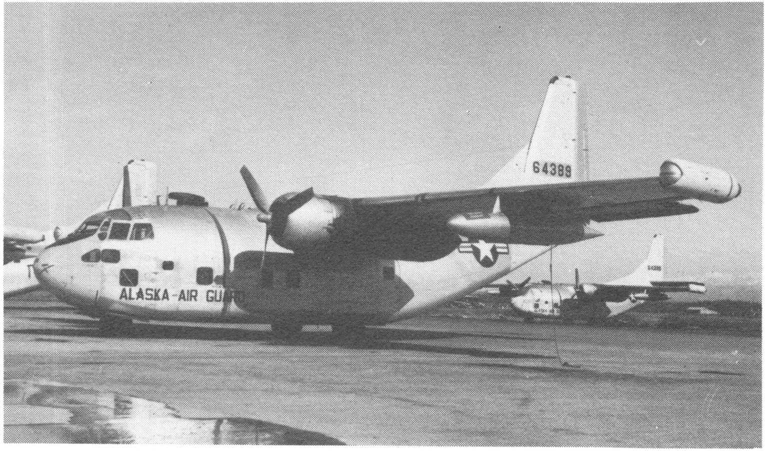


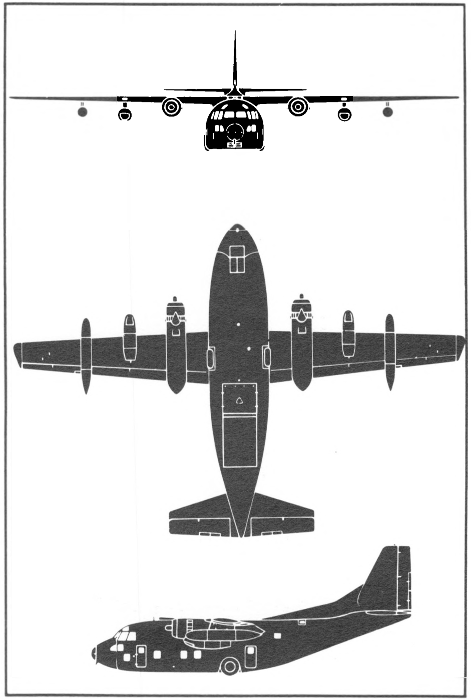
A 30/40-seat short-haul transport, the de Havilland Canada Dash 8 first flew in June 1983. There are two basic versions, the Commuter and the Corporate, the latter carrying 17 passengers over longer ranges. The Corporate has a maximum cruising speed of 500km/h and can fly four 185km stages without refuelling. First flown in May 1987, the Dash 8 Series 300 has fuselage extended by 3.43m and seats up to 56 people. Military versions of the Series 100 include the CC-142 and CT-142 for Canada and E-9A for surveillance/communications with the USAF. By end 1991 over 360 orders had been placed for the Dash 8 programme. *Country of origin:* Canada. *Main silhouette:* Dash 8 Series 100. *Picture:* E-9A.

Confusion: G222, Transall

Fairchild C-123 Provider

Power: 2 × R-8000 piston engines and 2 × J44 turbojets *Span:* 33.53m *Length:* 23.93m



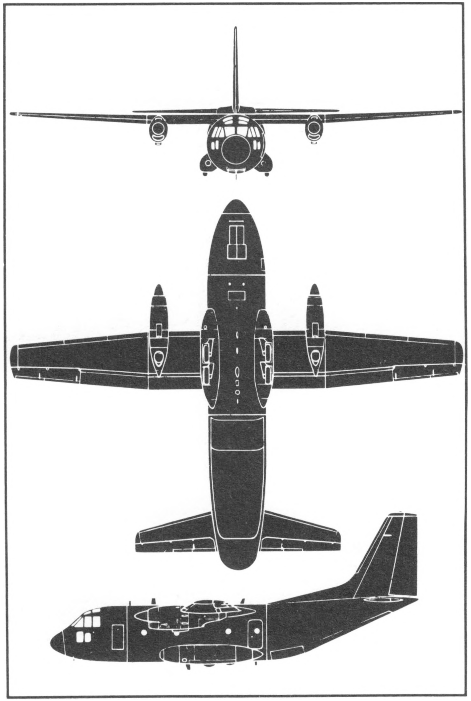


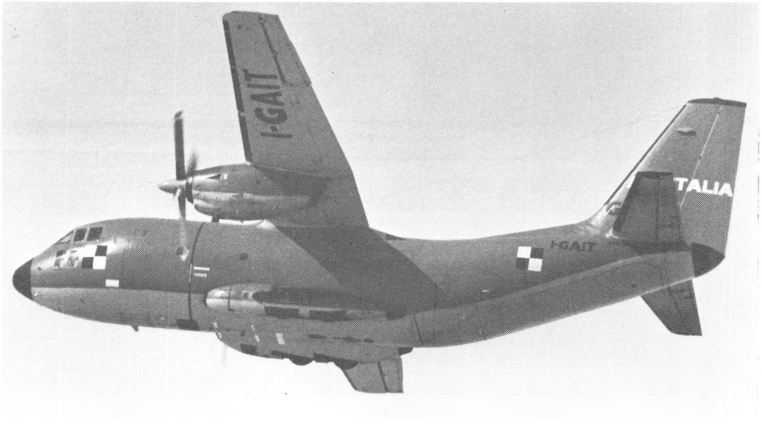
A tactical assault transport, the C-123 Provider can carry up to 60 equipped troops, stretchers or cargo. It was first flown in 1949 and production totalled 307. Originally produced as C-123Bs, 183 Providers were later converted to C-123K standard with underwing auxiliary jets. A further 10 were fitted with wingtip jets as the C-123H. Equipped with spraying gear for mosquito control, the Provider becomes the UC-123B. Underwing fuel tanks are standard, while some Providers have nose radomes. C-123s were supplied to air forces in the Far East and South America. *Country of origin:* USA. *Silhouette:* C-123K. *Picture:* C-123H.

Alenia G222

Confusion: Provider, Transall

Power: 2 × T64 or Tyne turboprops *Span:* 28.7m *Length:* 22.7m



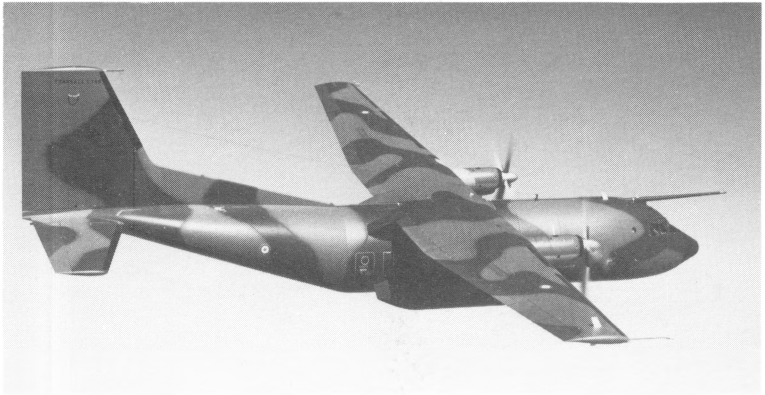


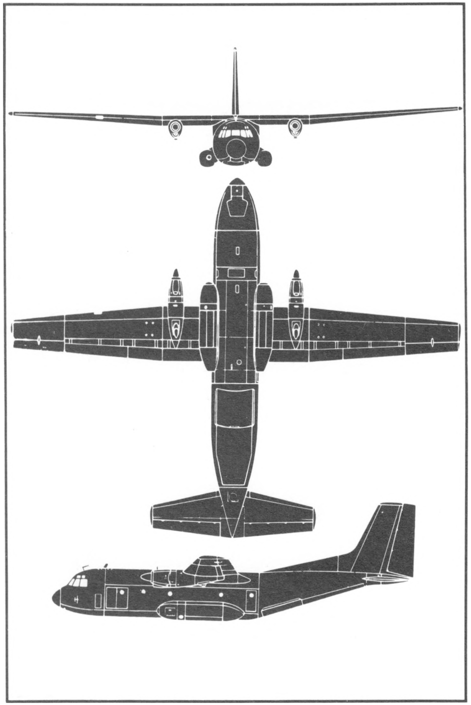
A general-purpose pressurised military transport, the Alenia G222 is produced for the Italian Air Force and for export. Capable of operating from rough strips, the 222 can carry 44 equipped troops, 36 stretchers or freight loaded through a large underside rear door. The prototype 222 first flew in 1970 and the type can also be used for firefighting (G222SAA), radio/radar calibration (G222RM), maritime surveillance and electronic warfare (G222VS). With Rolls-Royce Tyne turboprops the type is known as the G222T. Range of the G222 is 700km and continuous cruising speed is 360km/h. A total of 90 222s have been ordered. *Country of origin:* Italy. *Silhouette:* G222. *Picture:* G222T.

Confusion: G222, Provider, Aviocar

Transporter Allianz C-160 Transall

Power: 2 × Tyne turboprops *Span:* 40m *Length:* 32.4m



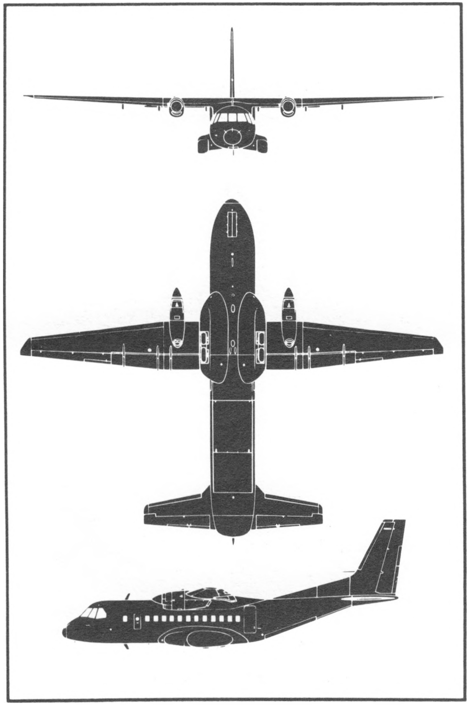


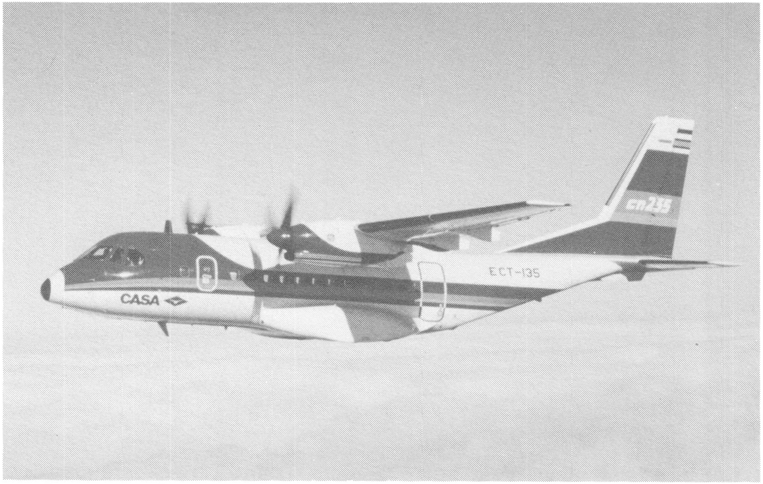
A joint Franco-German development, the C-160 Transall is a general-purpose military transport. It can carry up to 93 troops, freight or vehicles. A total of 179 were produced before production ceased in 1972. The line was later re-opened and production resumed with the Transall 'Second Series' until it closed in 1985. The aircraft of the new batch have updated electronics, increased maximum take-off weight and a reinforced wing embodying an optional fuel tank. As well as France and Germany, South Africa and Turkey also use the Transall. The aircraft can operate from semi-prepared surfaces. Cruising speed is 492km/h and range 1,175km. *Countries of origin:* France/Germany.

Airtech CN-235

Confusion: Transall

Power: 2 × CT7 turboprops *Span:* 25.81m *Length:* 21.35m



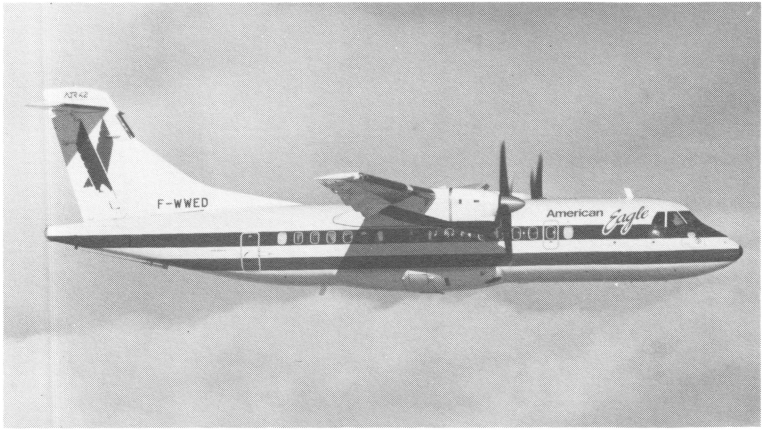


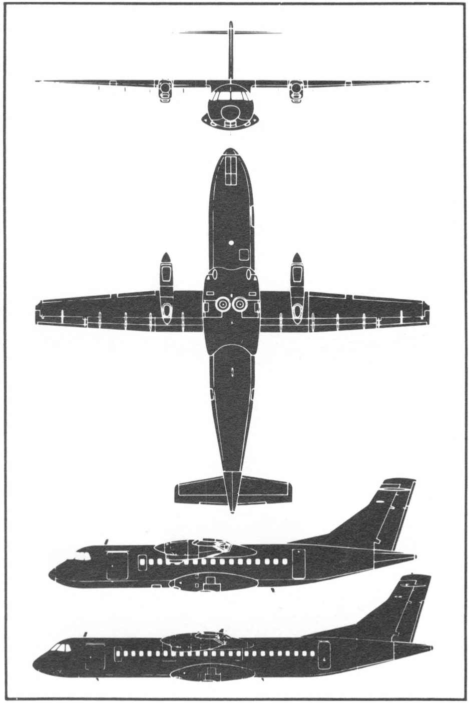
A joint venture by CASA of Spain and PT Nurtanio of Indonesia, the Airtech CN-235 is a twin turboprop commuter transport which first flew in November 1983. Seating up to 44 passengers, the CN-235 can fly four 185km stage lengths on short haul routes before needing to refuel. Maximum cruising speed is 452km/h. Production lines have been set up in both countries and by 1991 over 180 CN-235s had been ordered. Initial production aircraft were designated Series 10 while, with uprated engines, later production machines are called Series 100. *Countries of origin:* Spain/Indonesia

Confusion: Transall, Buffalo

Avions de Transport Régional ATR42/ATR72

Power: 2 × PW 120 turboprops *Span:* 24.57m *Length:* 22.67m



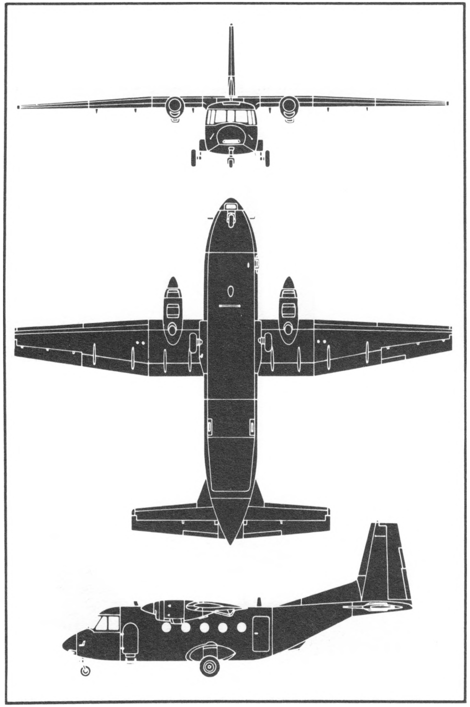


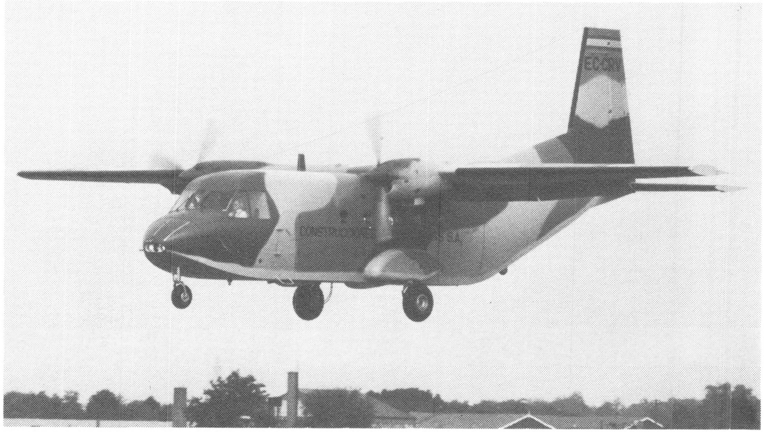
Jointly produced by Aerospatiale in France and Aeritalia in Italy, the ATR 42 commuter aircraft made its first flight in August 1984. Seating 40/50 passengers, the ATR 42 cruises at 463km/h over ranges up to 1,760km. Variants include ATR 42F freighter, ATM 42L military freighter and SAR 42 for search and rescue. Delivery commenced in mid-1989 of a stretched fuselage version, designated ATR72. Seating up to 74 passengers and with uprated engines the ATR72 has a span of 27.05m. By end 1991 the ATR42/ATR72 order book stood at 341. *Countries of origin:* France/Italy. *Main silhouette:* ATR 42; *lower side view:* ATR 72. *Picture:* ATR 42.

CASA C-212 Aviocar

Confusion: Transall

Power: 2 × TPE331 turboprops *Span:* 19m *Length:* 15.16m



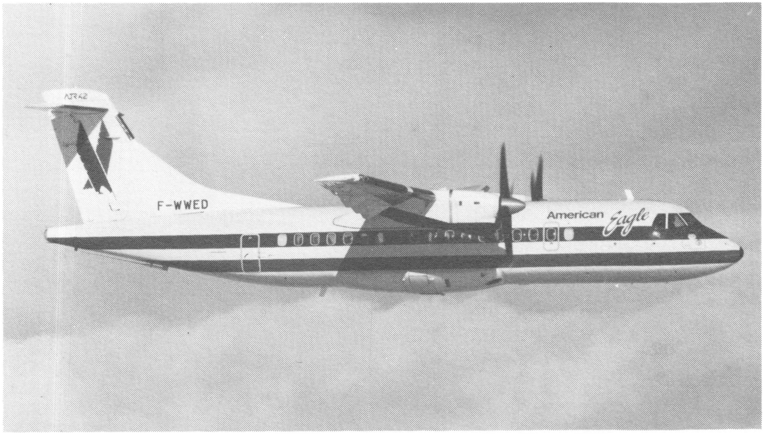


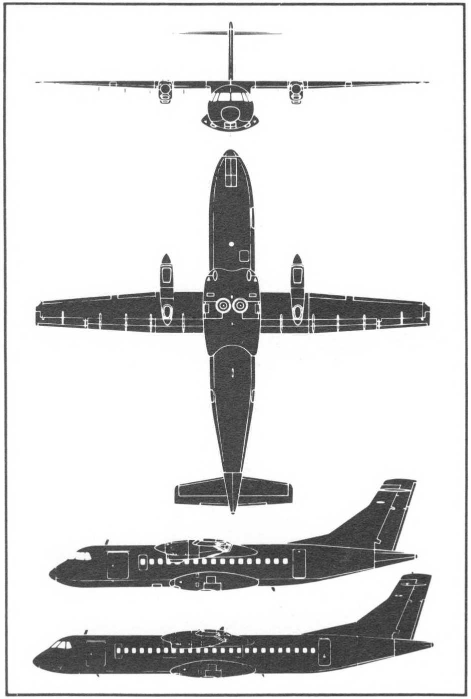
Used for both military and civil purposes, the Aviocar is a STOL utility transport, trainer and survey aircraft. More than 440 have been sold and there are production centres in Spain and Indonesia. The C-212-5 Series 100, the first production version, was superseded on the line by the Series 200 with more powerful engines and greater weight. The latest production version, with extended and other improvements, is the Series 300. In civil transport form the Aviocar Series 200 seats up to 26 passengers, cruises at 347km/h and has a range of 370km with full payload. An anti-submarine and maritime patrol version with a nose radome, has been produced. *Country of origin:* Spain. *Silhouette:* Series 200. *Picture:* Series 100.

Confusion: Transall, Buffalo

Avions de Transport Régional ATR42/ATR72

Power: 2 × PW 120 turboprops *Span:* 24.57m *Length:* 22.67m



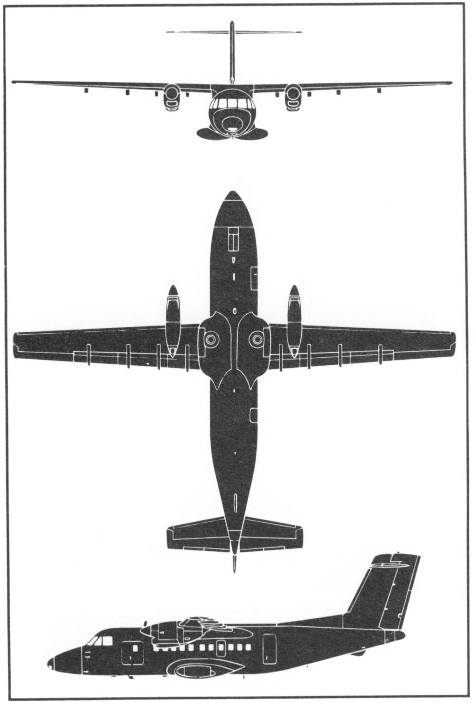


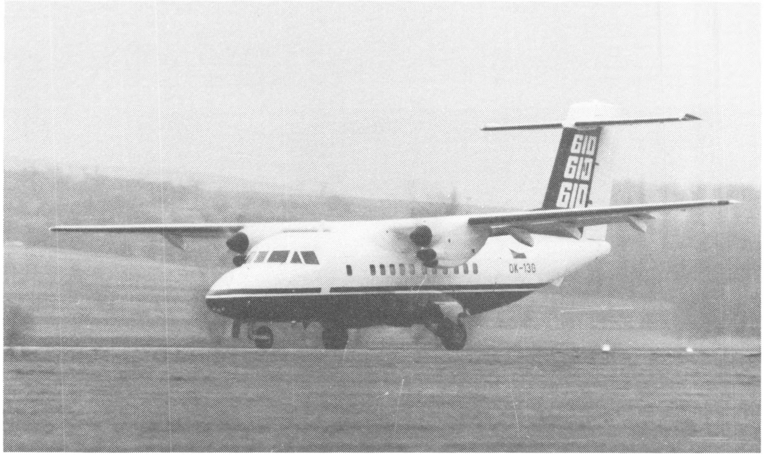
Jointly produced by Aerospatiale in France and Aeritalia in Italy, the ATR 42 commuter aircraft made its first flight in August 1984. Seating 40/50 passengers, the ATR 42 cruises at 463km/h over ranges up to 1,760km. Variants include ATR 42F freighter, ATM 42L military freighter and SAR 42 for search and rescue. Delivery commenced in mid-1989 of a stretched fuselage version, designated ATR72. Seating up to 74 passengers and with uprated engines the ATR72 has a span of 27.05m. By end 1991 the ATR42/ATR72 order book stood at 341. *Countries of origin:* France/Italy. *Main silhouette:* ATR 42; *lower side view:* ATR 72. *Picture:* ATR 42.

LET L-610

Confusion: ATR 42

Power: 2 × M602 or CT-7 turboprops *Span:* 25.6m *Length:* 21.4m



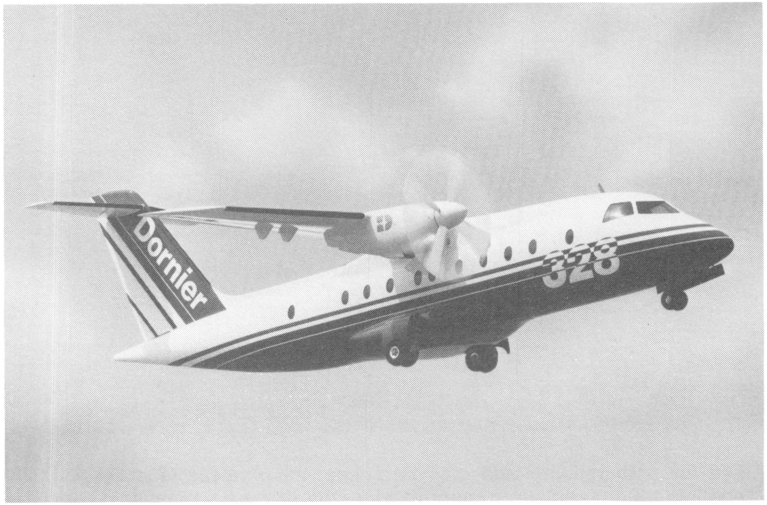


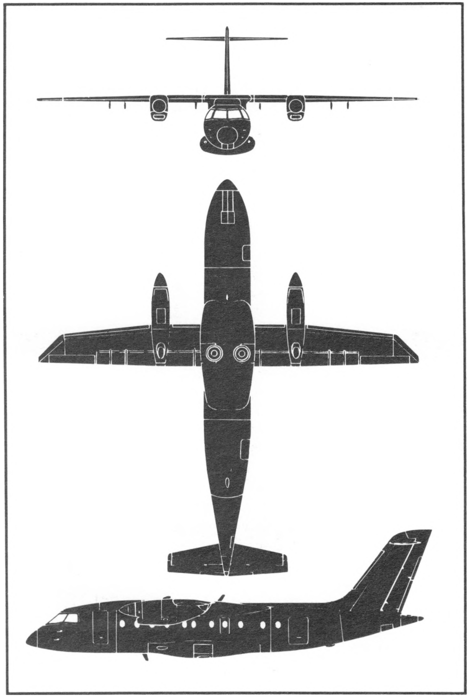
First flown in December 1988, the L-610 is a larger follow-on to the successful L-410 commuter aircraft. Seating 40, the L-610 is powered by two new engines made by the Motorlet National Corporation. Compared with the L-410, the L-610 has increased span and length, circular section fuselage and tailplane mounted high on the tall fin. The L-610 cruises at 400km/h and has a range of 870km. Aeroflot was to have ordered 600 L-610s but with Russian financial problems this is now doubtful. LET is looking elsewhere for export orders. A second version of the aircraft is the L-610G with CT-7 turboprops. *Country of origin:* Czechoslovakia.

Confusion: Do 228, ATR 42, LET L-610

Dornier Do 328

Power: 2 × PW 119 turboprops *Span:* 20.98m *Length:* 21.22m



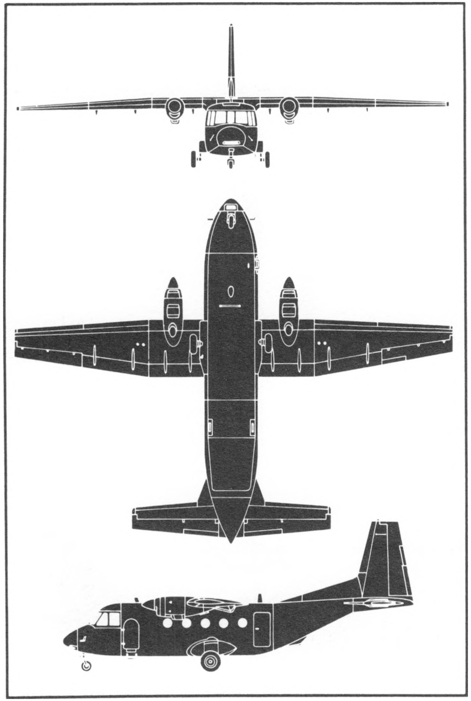


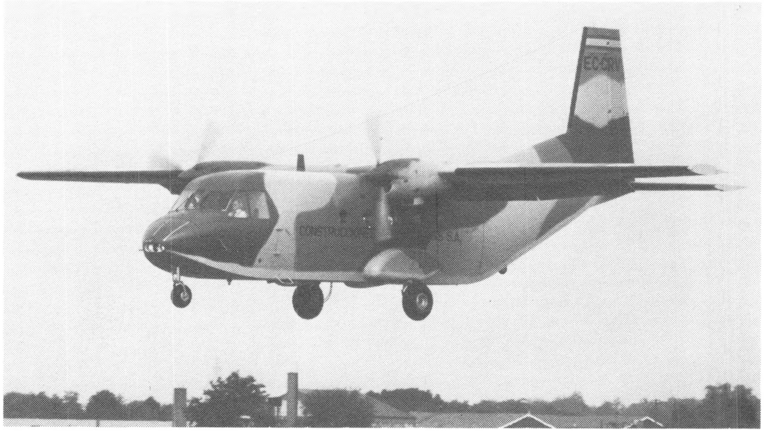
Deliveries of the new Do 328 feeder-liner are due to commence in 1993; at the time of writing, orders stood at 76 firm, plus 72 options. Dornier estimates a market of 400 for the type. Having the same basic wing profile as the Do 228, the 328 seats 33 passengers and cruises at 639km/h over ranges up to 1,556km. Fuselage shells are made in Korea and assembled by Aermacchi in Italy, while wings are made in Israel. Dornier is planning a stretched 50-seat version of the 328. *Country of origin:* Germany.

CASA C-212 Aviocar

Confusion: Transall

Power: 2 × TPE331 turboprops *Span:* 19m *Length:* 15.16m

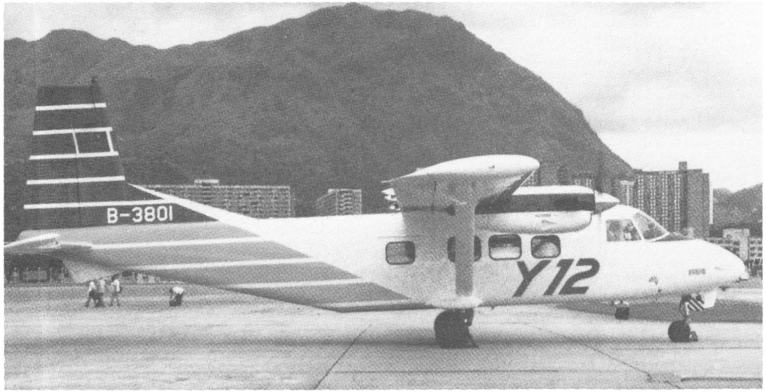


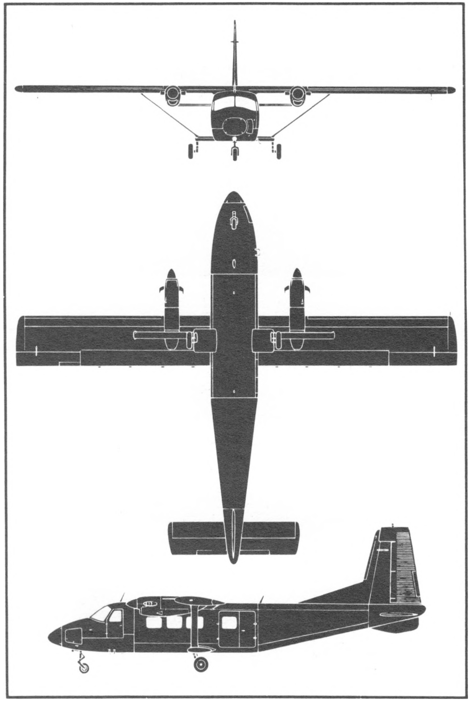


Used for both military and civil purposes, the Aviocar is a STOL utility transport, trainer and survey aircraft. More than 440 have been sold and there are production centres in Spain and Indonesia. The C-212-5 Series 100, the first production version, was superseded on the line by the Series 200 with more powerful engines and greater weight. The latest production version, with extended and other improvements, is the Series 300. In civil transport form the Aviocar Series 200 seats up to 26 passengers, cruises at 347km/h and has a range of 370km with full payload. An anti-submarine and maritime patrol version with a nose radome, has been produced. *Country of origin:* Spain. *Silhouette:* Series 200. *Picture:* Series 100.

Harbin Yun-12

Power: 2 × PT6A turboprops *Span:* 17.23m *Length:* 14.86m



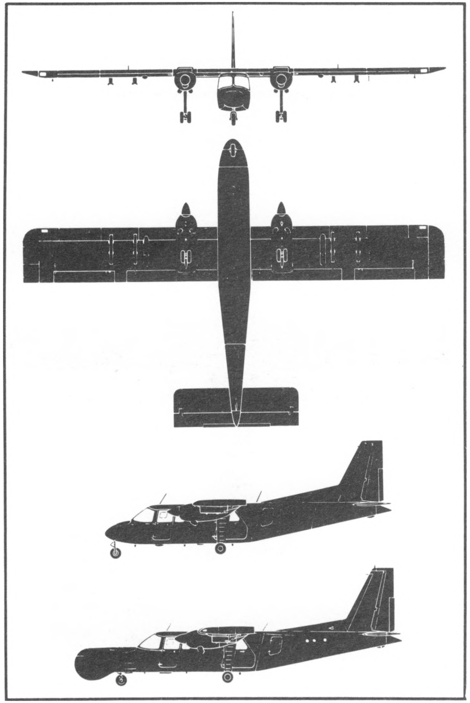


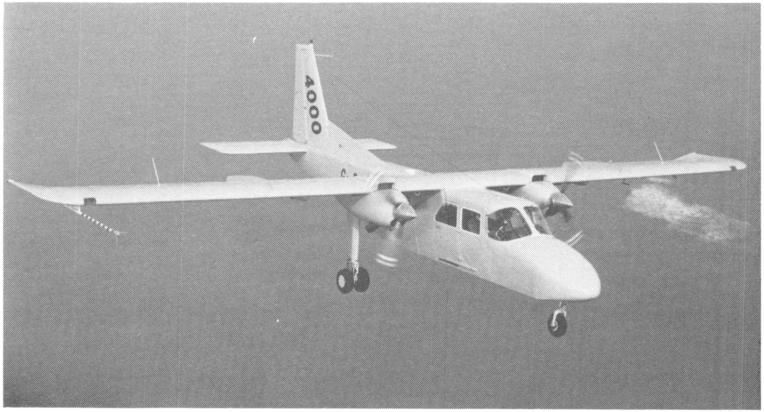
Bearing a superficial resemblance to the Pilatus Britten-Norman Islander, the HAMC Y-12II, Yun-12 is a short field turboprop-powered utility transport. First flown in August 1984, the type is in production and has already been exported to Sri Lanka and Laos. The Yun-12 has a crew of two and can carry up to 17 passengers or freight. In addition it can be equipped for crop spraying and other roles. Cruising speed is 328km/h, maximum take-off weight 5,300kg and take-off run 340m. *Country of origin:* China.

Pilatus Britten-Norman Islander/Defender

Confusion: Trislander, P.68 Victor, Yun-12

Power: 2 × Lycoming piston engines *Span:* 14.94m *Length:* (long nose): 12.02m



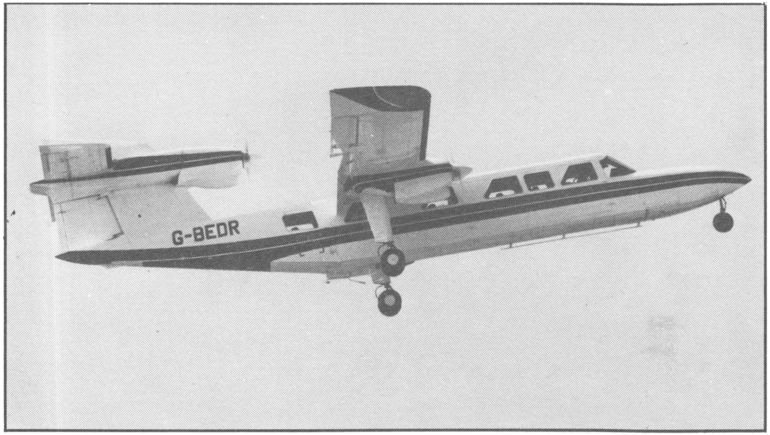


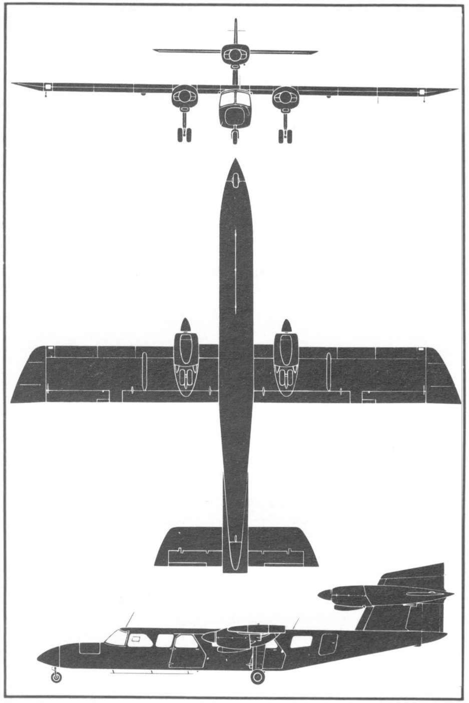
First flown in 1965, the 10-passenger BN-2 Islander light transport has sold all over the world and over 1,100 have been ordered. Licence production is going on in Romania and the Philippines. Compared with earlier versions, the BN-2A-85 Islander has a longer nose and an extra rear cabin window on each side. Military variants with underwing stores are the Defender and the Maritime Defender, the latest being the turboprop Defender 4000 with airframe and engine improvements. A current version is the BN-2-T Turbine Islander, powered by two Allison turboprops. A surveillance version with a large circular nose radar is also on offer as the AEW Defender. There are also AEW/MR and ASW/ASV developments. *Country of origin:* UK. *Main silhouette:* Defender 4000; *lower side view:* AEW. *Picture:* Defender 4000.

Confusion: Islander

Pilatus Britten-Norman Trislander

Power: 3 × Lycoming piston engines *Span:* 16.15m *Length:* (Mk III-2): 13.33m



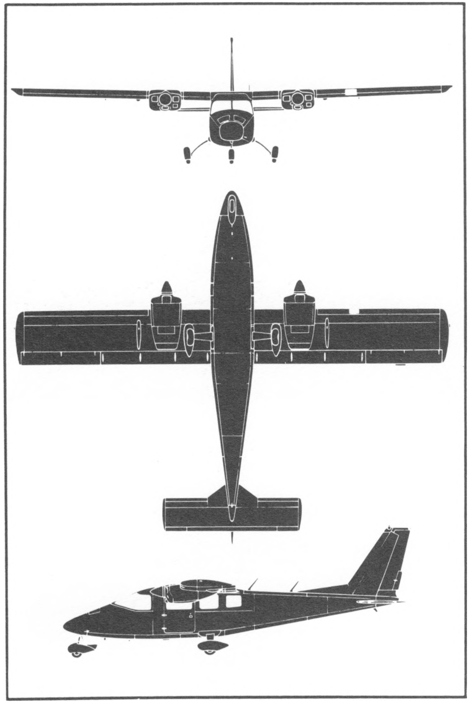


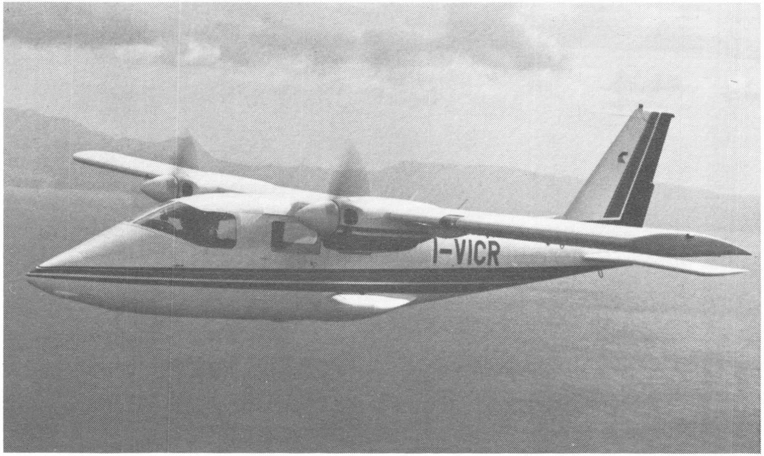
The BN-2A Trislander is derived from the twin-engined Islander and has 75 per cent of its components in common. Essential difference is the fitting of a third engine in the redesigned fin. Some Trislanders have been produced with a short nose, while the Mk III-2 has a long nose . Trislanders were produced in Belgium for a time. The aircraft carries 16/17 passengers, cruises at 282km/h and has a range with maximum payload of 257km. Over 80 Trislanders were delivered. *Country of origin:* UK. *Silhouette and picture:* Mk III-2.

Partenavia P68 Victor

Confusion: Islander, Twin Otter

Power: 2 × Lycoming piston engines or 2 × Allison 250 turboprops *Span:* 12m *Length:* 9.35m



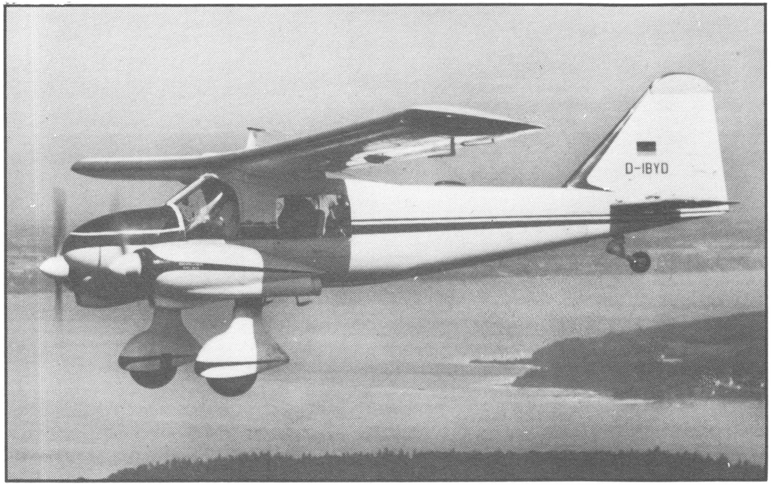


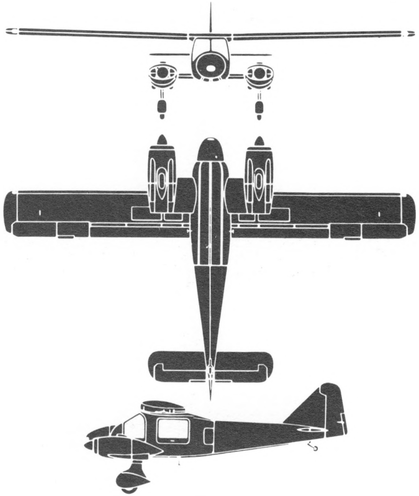
A streamlined light transport, the original P68 was first put into production in 1964. A variety of versions have emerged, including the six-passenger P68B, the P68R with retractable undercarriage, P68C, currently in production and P68TC with turbosupercharged engines. An Italian/German development, the P68 Observer, has a transparent nose and is designed for police and observation duties. Cruising speed of the P68B is 296km/h and range 1,656km. Derivatives of the P68 are the larger AP68TP-300 Spartacus and AP68TP-600 Viator, the latter with a retractable undercarriage. *Country of origin:* Italy. *Silhouette:* P68C. *Picture:* P68R.

Confusion: Skyservant

Dornier Do 28B

Power: 2 × Lycoming piston engines *Span:* 13.8m *Length:* 9m



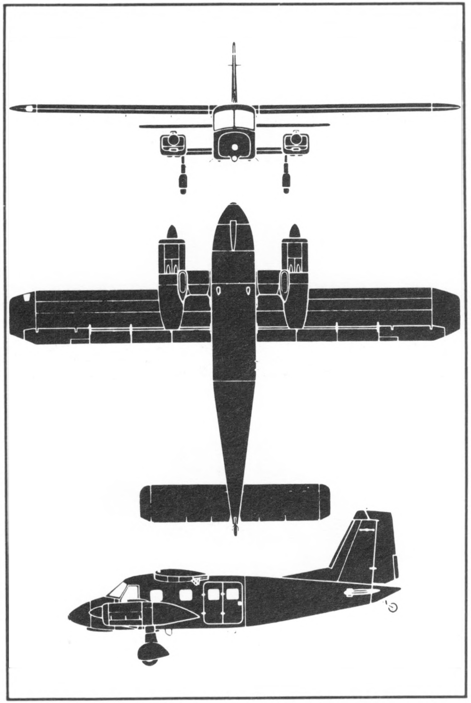


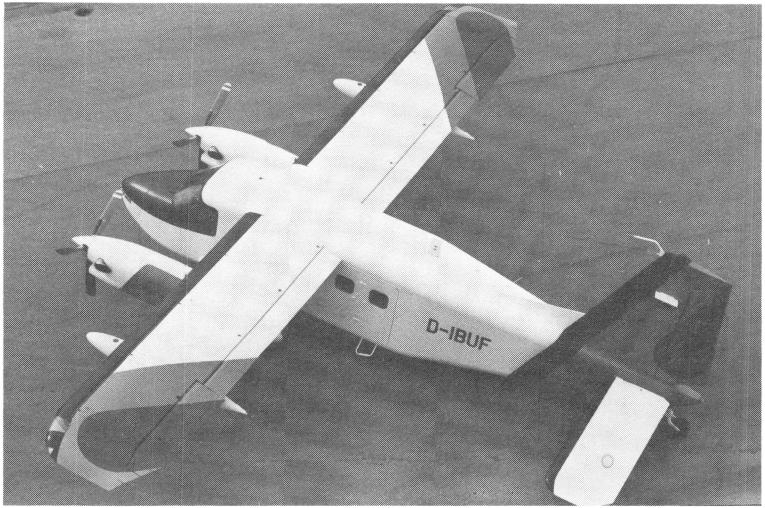
A twin-engined version of the Do 27, the Do 28 seven-passenger light transport retains the basic wings and fuselage of the single-engined type. Some 120 Do 28s were built, including military aircraft and six floatplanes. First flight was in 1959. The nose was redesigned, the tailplane enlarged and wingspan increased to produce the Do 28B1. The B2 has supercharged engines. Maximum cruising speed of the B1 is 274km/h and range 1,235km. *Country of origin:* Germany. *Silhouette:* Do 28B1. *Picture:* Do 28B2.

Dornier Do 28D/Do 128 Skyservant

Confusion: Do 28B

Power: 2 × Lycoming piston engines or 2 × PT6A turboprops *Span:* 15.55m *Length:* 11.41m

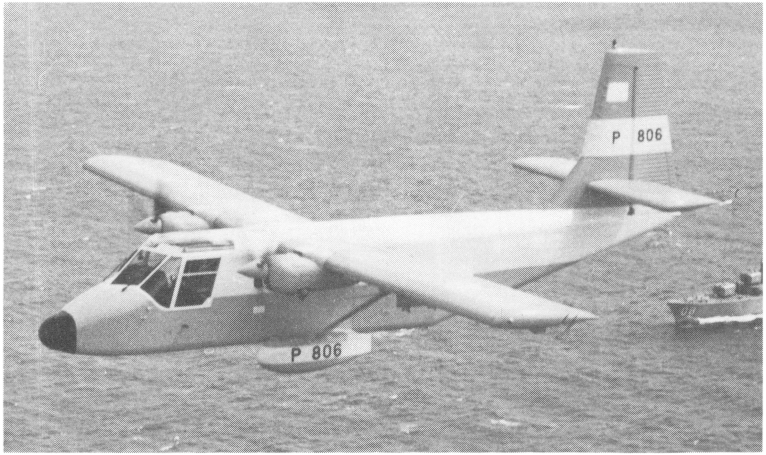


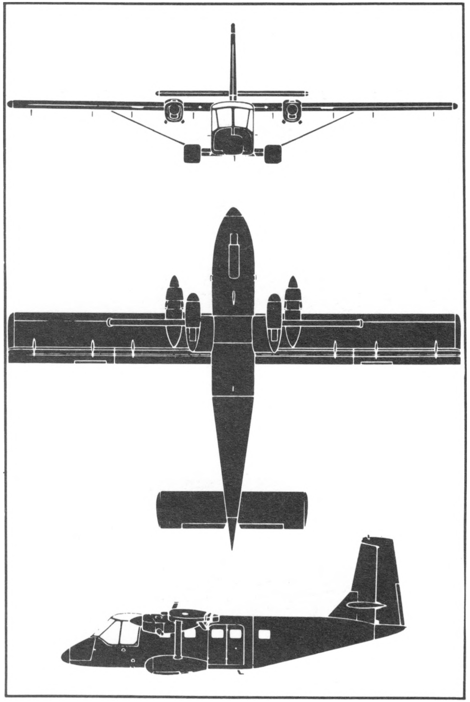


Retaining the same layout as the Do 28 but virtually a complete redesign, the Do 28D Skyservant first flew in 1966. A STOL utility transport, the Skyservant seats up to 14 passengers or can carry freight. Six air forces have bought Skyservants, the largest operator being the Luftwaffe which still has 44. The turboprop-powered Do 128-6 with PT6A engines, followed the end of Do 128-2 Skyservant production. *Country of origin:* Germany. *Silhouette:* Do 28D2. *Picture:* Do 128-6.

ASTA Nomad

Power: 2 × Allison turboprops *Span:* 16.46m *Length:* 14.35m



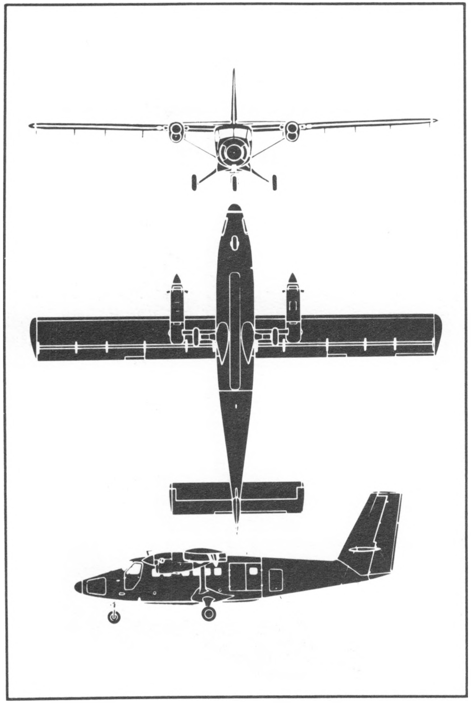


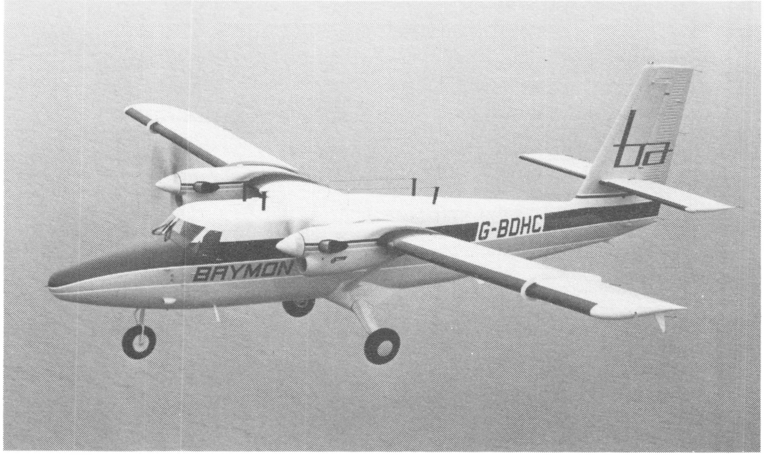
A twin-turboprop high-wing utility transport and feederliner, the ASTA (formerly GAF) Nomad first flew in 1971. The prototype was known as the N2, while the initial production variant was the 17-passenger N22B. Patrol and surveillance versions of the N22B are known as the Search Master B and L. For general-purpose military work the N22B is known as the Missionmaster. An uprated version is the N22C. The N24 has increased fuselage length and seating for 19 passengers. The N24 Nomad has a range of 1,585km and a cruising speed of 269km/h. A total of 170 Nomads were built. *Country of origin:* Australia. *Silhouette:* N22B. *Picture:* Search Master.

DH DHC-6 Twin Otter

Confusion: Nomad, 'Clod', 'Cash'

Power: 2 × PT6 turboprops *Span:* 19.81m *Length:* 15.77m



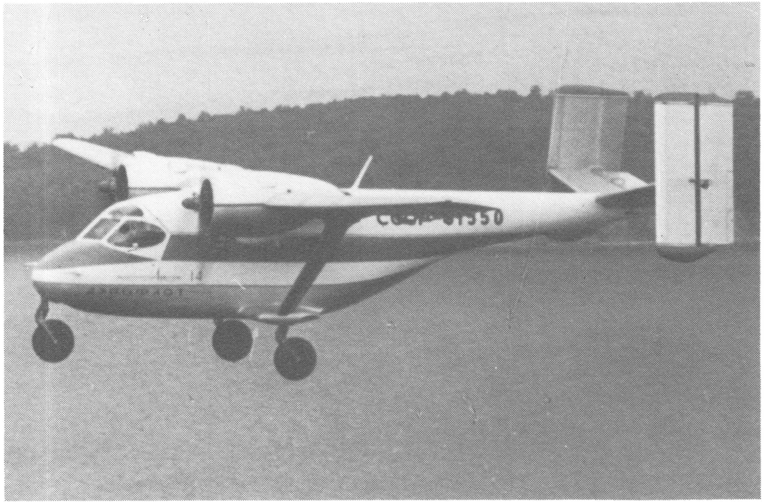


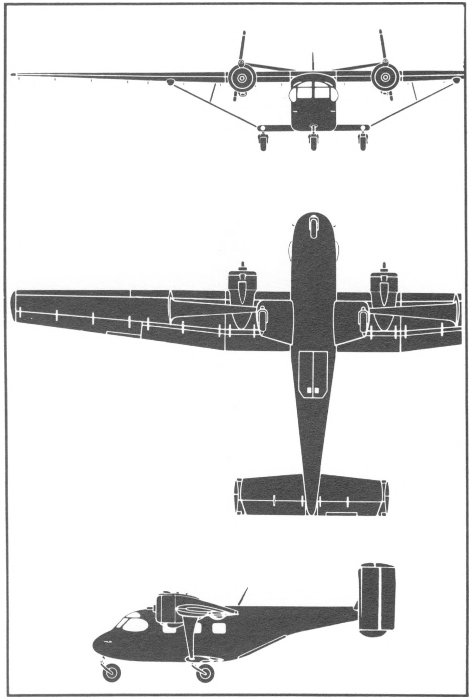
A general-purpose civil and military transport, the DHC-6 Twin Otter can operate from short, rough fields and accommodate up to 20 passengers or freight. First flown in 1965, the Twin Otter has been built in three forms, the 100, 200 and 300 series. Service designations are CC-138 (Canadian Forces) and UV-18A (US Army). Maximum cruising speed is 337km/h, at which the range is 1,775km. The floatplane version has a short nose and small additional fins above and below the tailplane. A Twin Otter Series 300 supplied to China for survey work has a nose probe and wingtip pods. *Country of origin:* Canada. *Silhouette:* Series 200. *Picture:* Series 300.

Confusion: Skyvan, 'Cash'

Antonov An-14 'Clod'

Power: 2 × Ivchenko piston engines *Span:* 21.99m *Length:* 11.44m



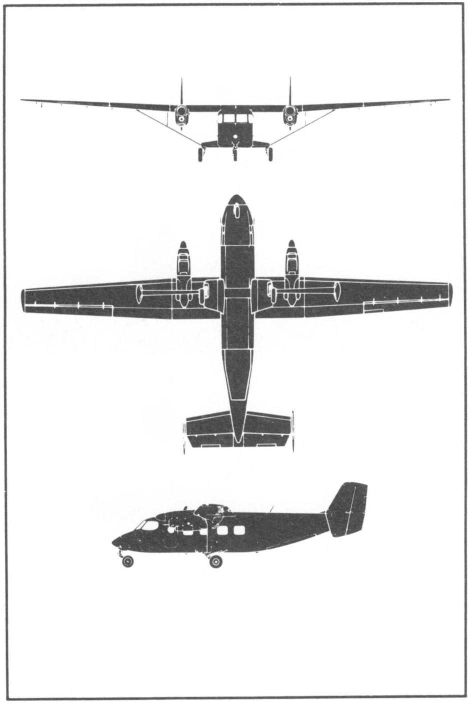


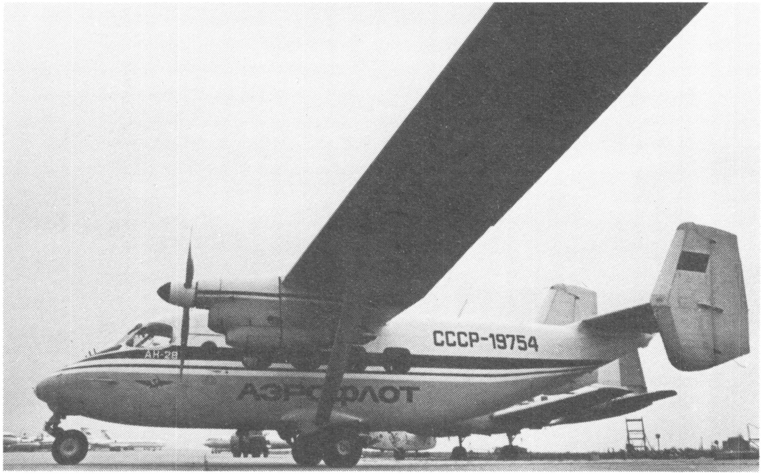
A rough-field STOL utility transport, the An-14, code-named 'Clod', was produced in quantity, mainly for Aeroflot. With a one-man crew, the 'Clod' has seating for seven passengers. The prototype flew in 1958 but production was delayed for a major redesign to the present standard, with a high-aspect-ratio wing and large endplate fins. In the CIS the 'Clod' is known as the *Pchelka* ('Little Bee'). Clamshell rear doors simplify freight loading. Cruising speed is 180km/h. *Country of origin:* Ukraine.

PZL Mielec (Antonov) An-28 'Cash'

Confusion: 'Clod', Skyvan, Shorts 330, 360

Power: 2 × turboprops TVD-10B *Span:* 22.06m *Length:* 13.1m



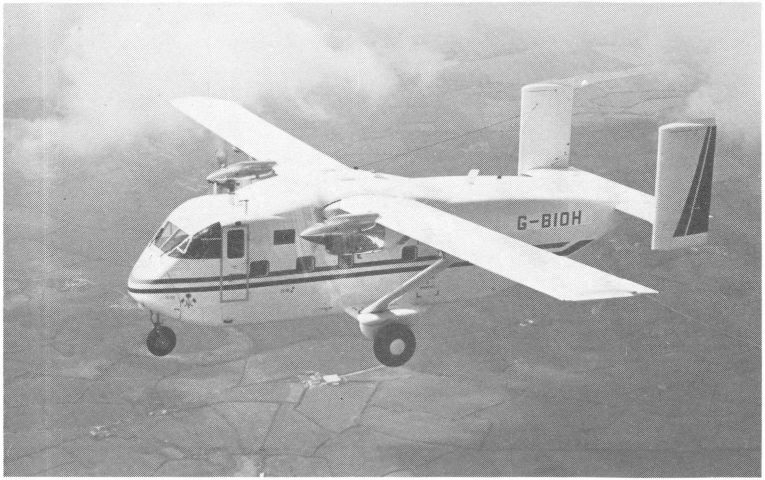


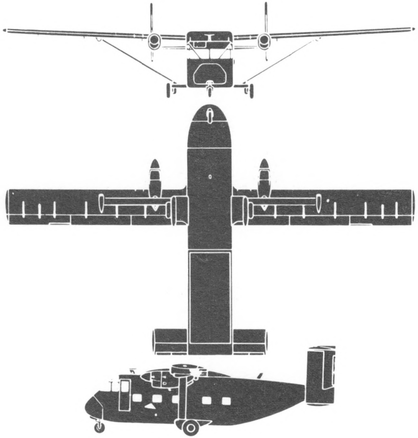
Originally developed by the Antonov Bureau in the Ukraine as a turboprop version of the An-14 'Clod', the An-28 'Cash' is now produced in Poland by WSK-PZL Mielec. The 'Cash' has a high-aspect-ratio braced wing, sponson-mounted undercarriage and rear underfuselage doors. It is intended for a variety of roles including flying training, carriage of passengers (17), mail and freight, firefighting, geological survey and agricultural work. Initial deliveries from the Polish line began in 1984. The An-28 cruises at 337km/h over ranges up to 350km. *Countries of origin:* Ukraine/Poland.

Confusion: Shorts 330, Shorts 360, Skyservant, 'Clod', 'Cash'

Shorts Skyvan

Power: 2 × TPE331 turboprops *Span:* 19.79m *Length:* 12.21m



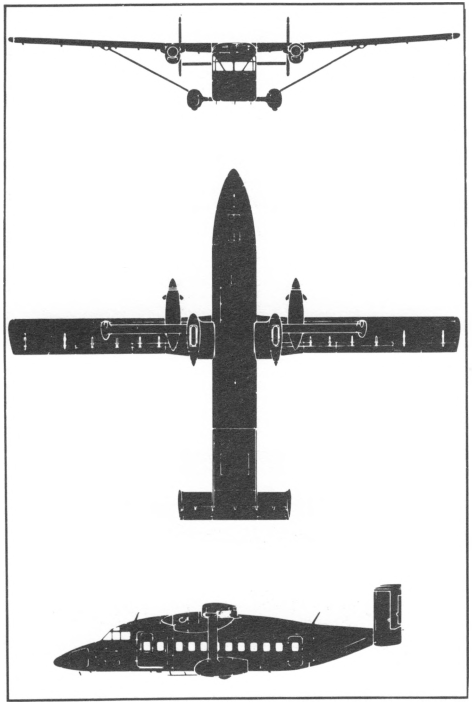


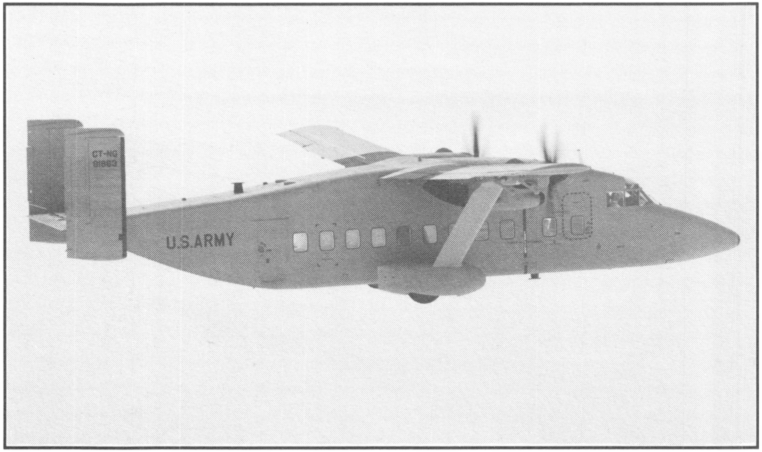
A rugged STOL general-purpose transport, the Skyvan originally flew in 1963 with piston engines. It was then fitted with French Astazou turboprops and finally with Garrett AiResearch turboprops. Some 150 Skyvans were built for military, paramilitary and civil use. The Skyliner feederliner can carry up to 19 passengers, while freighter versions can lift 2,085kg of cargo or vehicles. Freight is loaded through an underside rear door. Skyvan Series 3 has a range of 1,115km and a maximum cruising speed of 314km/h. *Country of origin:* UK. *Silhouette and picture:* Series 3.

Shorts 330/Sherpa/C-23A

Confusion: Skyvan, Shorts 360, 'Cash', Skyservant

Power: 2 × PT6A turboprops *Span:* 22.76m *Length:* 17.69m



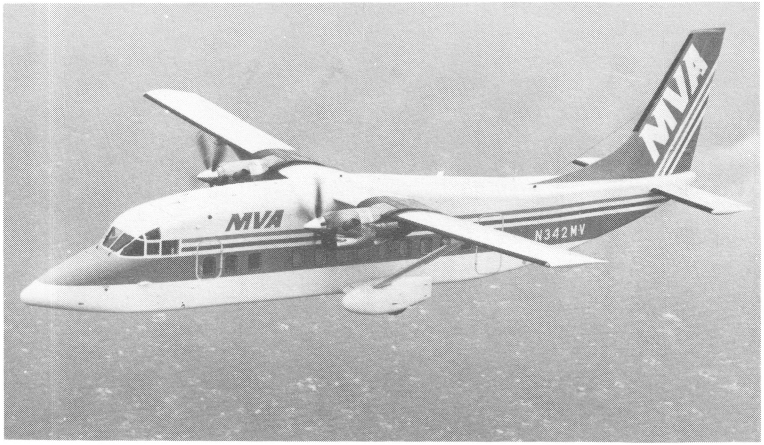


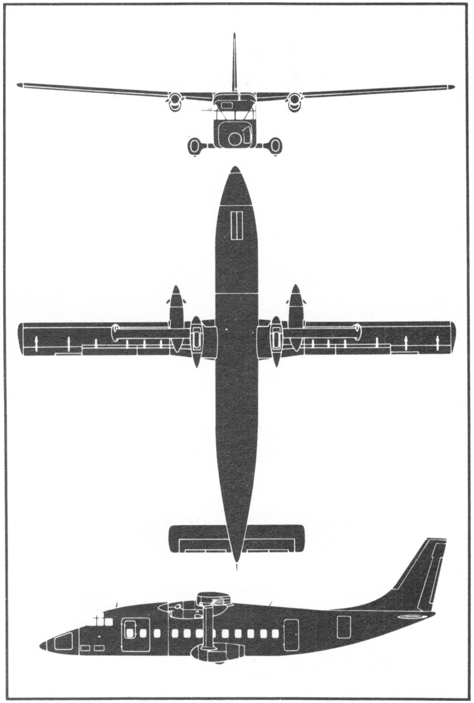
A 30-seat feederliner and utility transport, the Shorts 330 is similar in basic configuration to the smaller Skyvan. The fuselage is rectangular in cross-section and the wing has a high-aspect-ratio. Unlike the Skyvan, the 330 has a retractable undercarriage. Over 180 330s were built, including the standard 330-200 passenger version, the 330-UTT military utility transport and the Sherpa freighter with rear door, 18 of which were ordered by the USAF as the C-23A. Cruising speed of the 330-200 is 296km/h and range with maximum fuel, 1,695km. *Country of origin:* UK. *Silhouette:* 330. *Picture:* C-23B Sherpa.

Confusion: Shorts 330, Nomad

Shorts 360

Power: 2 × PT6A turboprops *Span:* 22.75m *Length:* 21.49m



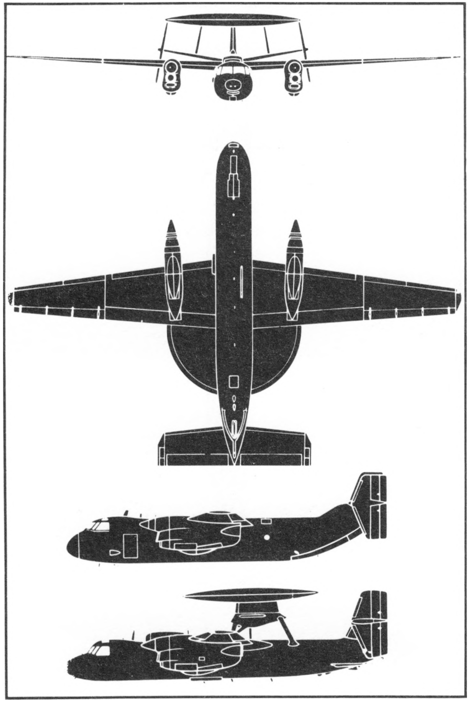


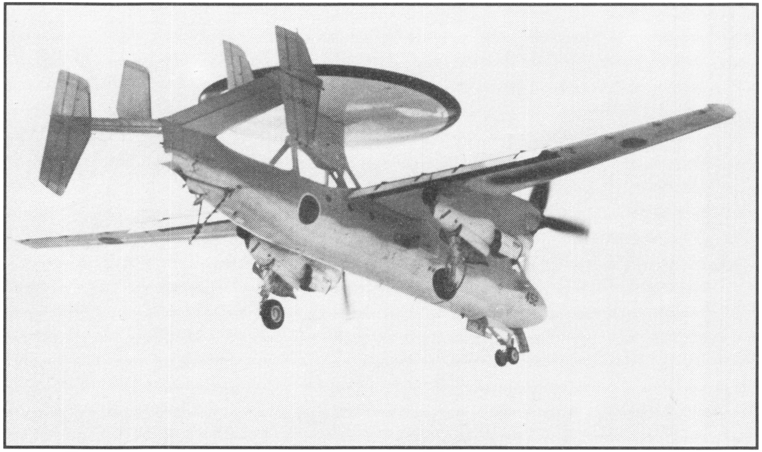
Retaining the high-aspect-ratio wing of the Shorts 330, the 360 differs from the former in having a 0.91m extension in the forward fuselage and a redesigned rear fuselage with a single swept fin. Flown for the first time in 1981, the 360 is in production at Belfast alongside the 330. A short-range commuter transport, the 360 carries 36 passengers and cruises at 391km/h, and has a maximum range of 1,054km. Latest version is the 360-300 with uprated engines and six-blade propellers. Deliveries began in the last quarter of 1982 and 164 were built. *Country of origin:* UK. *Silhouette:* 360. *Picture:* 360-300.

Grumman E-2 Hawkeye

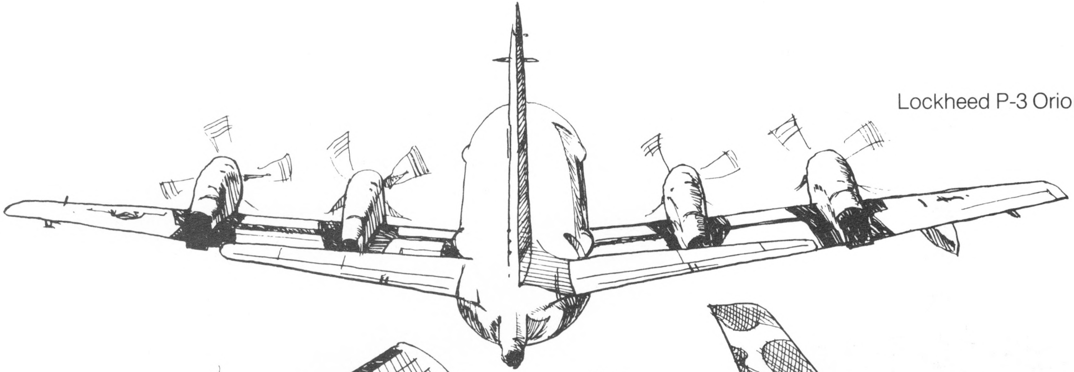
Confusion: —

Power: 2 × T56 turboprops *Span:* 24.56m *Length:* 17.55m

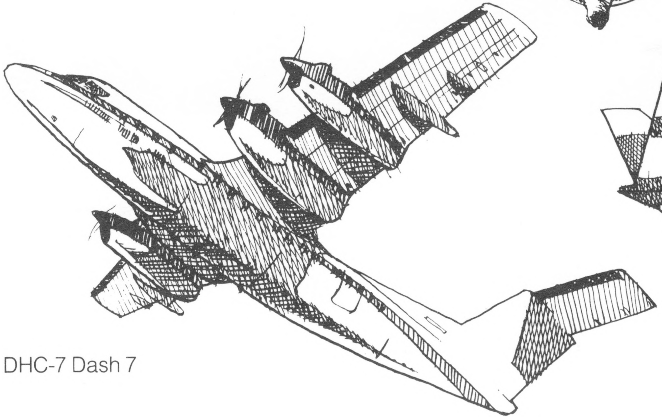




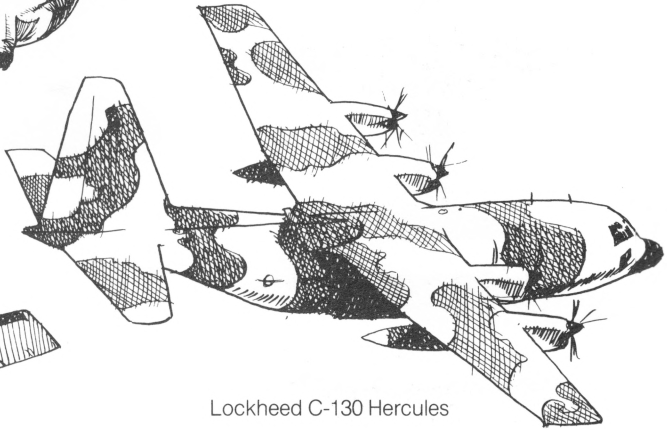
The first US Navy turboprop-powered type to enter service, the E-2 Hawkeye is a carrierborne early-warning aircraft. Virtually an airborne radar station, the Hawkeye carries a massive oval radome mounted above the fuselage and houses complex electronic gear operated by a five-man crew. The differences between the various Hawkeye versions (E-2A, B and C) lie in the radar and internal equipment. The transport version of Hawkeye is the C-2A Greyhound, while a trainer is the TE-2C. The aircraft has a range of 2,660km. *Country of origin:* USA. *Main silhouette:* E-2C; *upper side view:* C-2A. *Picture:* E-2C.



Lockheed P-3 Orion



DHC-7 Dash 7

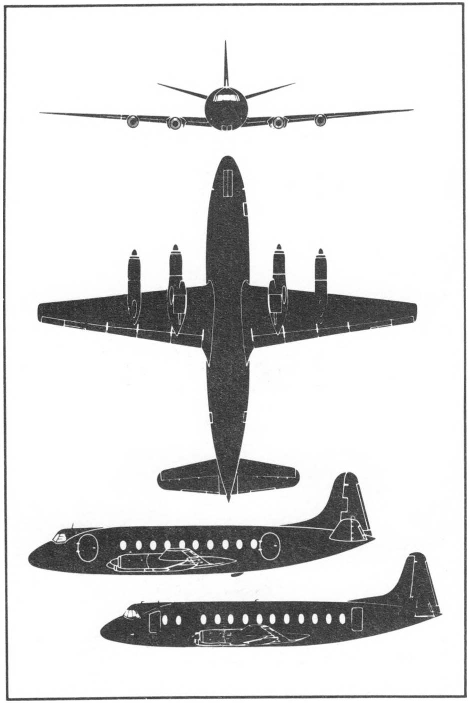


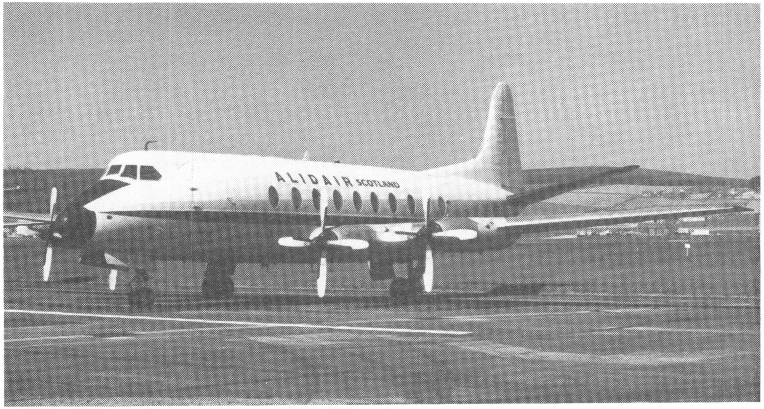
Lockheed C-130 Hercules

Vickers Viscount

Confusion: Heron

Power: 4 × Dart turboprops *Span:* (700): 28.56m *Length:* (700): 25.04m



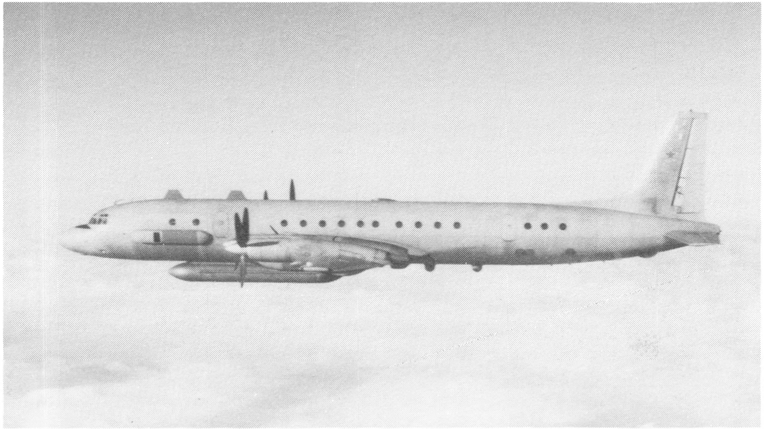


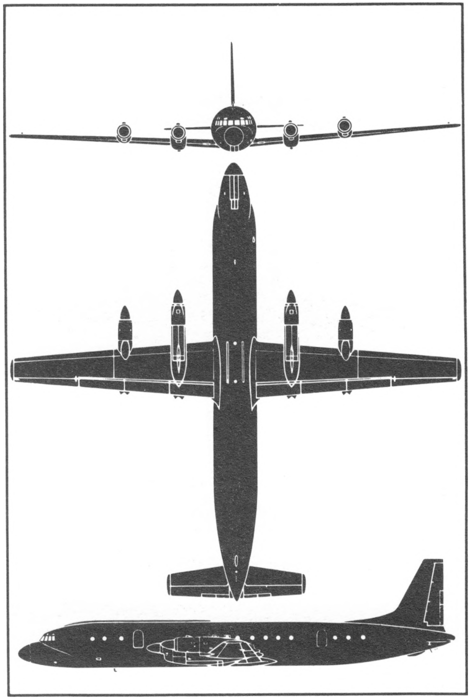
The world's first turboprop transport to go into service, the Viscount short-range airliner first flew in 1948 and 441 were built. The first production version was the Series 700 with up to 59 passengers. This was followed by the stretched 800 series with seating for up to 65 passengers. The Viscount remains in service in many countries. Several 700s and 800s were built or converted for executive use. Scottish Aviation designed a convertible passenger/cargo interior for Series 800 Viscounts. Some 30 Viscounts remain in service. The 700 cruises at 502km/h and has a range of 2,815km. *Country of origin:* UK. *Main silhouette:* Viscount Series 800; *upper side view:* Viscount Series 700. *Picture:* Viscount Series 700.

Confusion: 'May', Orion, Electra

Ilyushin Il-18/Il-20 'Coot'

Power: 4 × Ivchenko turboprops *Span:* 37.4m *Length:* 35.9m



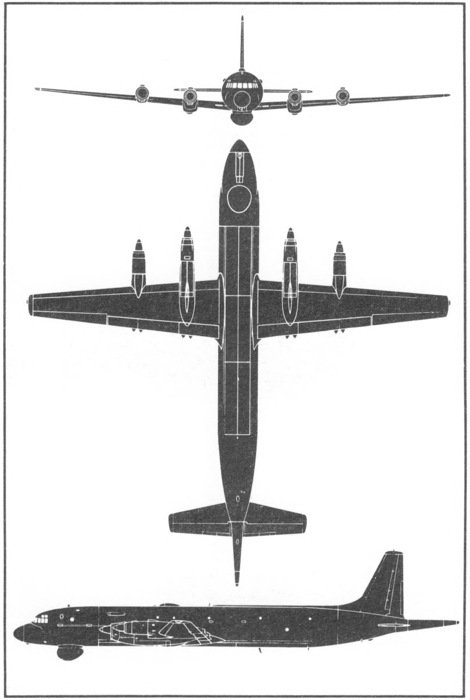


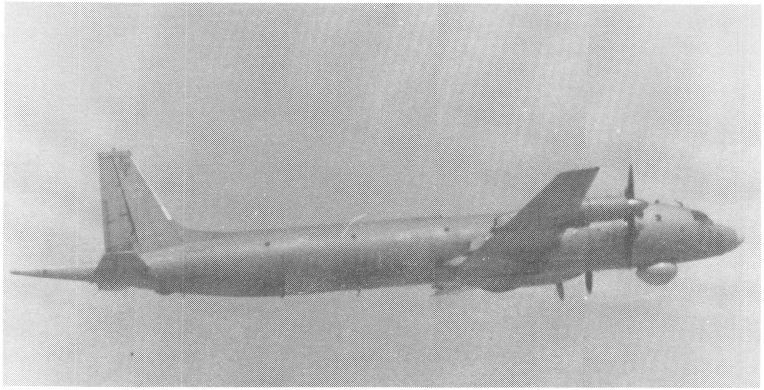
Over 700 Il-18 'Coot' medium-range airliners were built and the type was exported to a number of countries. It first came into service in 1959 and was known in Russia as the 'Moskva'. Several versions were produced, including the Il-18V with 89/100 passengers and the Il-18D with 122 passengers. The Il-18D cruises at 625km/h over ranges of up to 6,500km. A military development is the electronic surveillance Il-20 'Coot A', with forward fuselage side bulges, a large underfuselage pannier and dorsal aerial fairings. An airborne command post variant, Il-22 code-named 'Coot B', has been developed. *Country of origin:* Russia. *Silhouette:* Il-18. *Picture:* Il-20 'Coot A'.

Ilyushin Il-38 ‘May’

Confusion: ‘Coot’, Orion, Electra

Power: 4 × Ivchenko turboprops *Span:* 37.4m *Length:* 39.92m



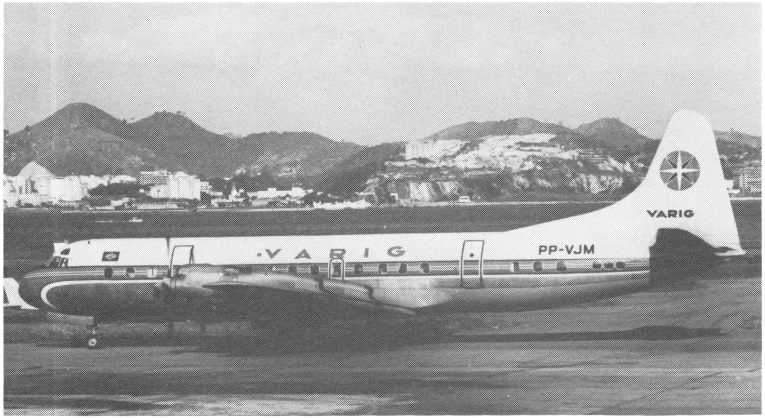


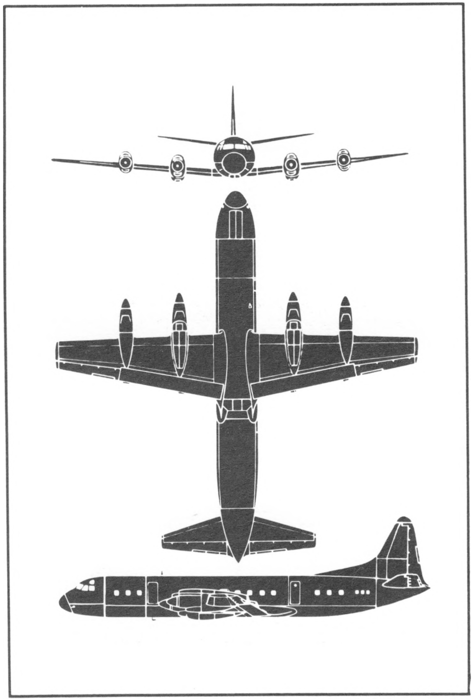
Like the American Orion, the Il-38, code-named ‘May’, is a civil airliner developed for maritime reconnaissance and anti-submarine warfare. The ‘May’ marries the wings and tail assembly of ‘Coot’ to a new fuselage with a bulbous radome under the forward section and a magnetic anomaly detector (MAD) fairing extending from the tail. ‘May’ has a cruising speed of 595km/h and a range of 7,240km. Armament includes homing torpedoes and depth charges. About 50 Il-38s are in CIS service and three have been exported to India. *Country of origin:* Russia.

Confusion: Orion, ‘Coot’, ‘May’

Lockheed L-188 Electra

Power: 4 × Allison 501 turboprops *Span:* 30.18m *Length:* 31.81m



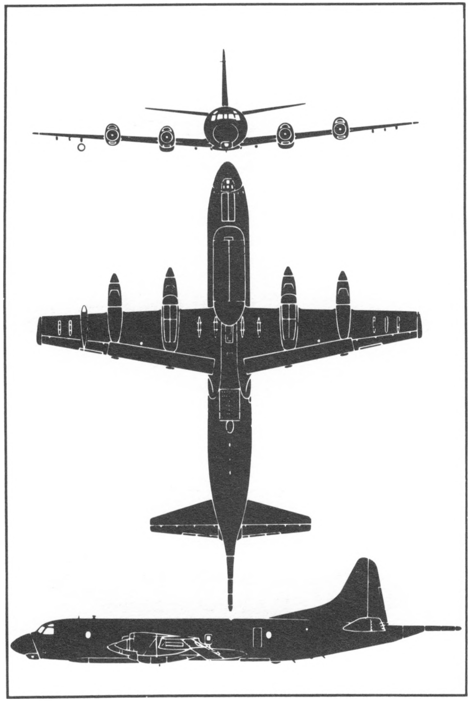


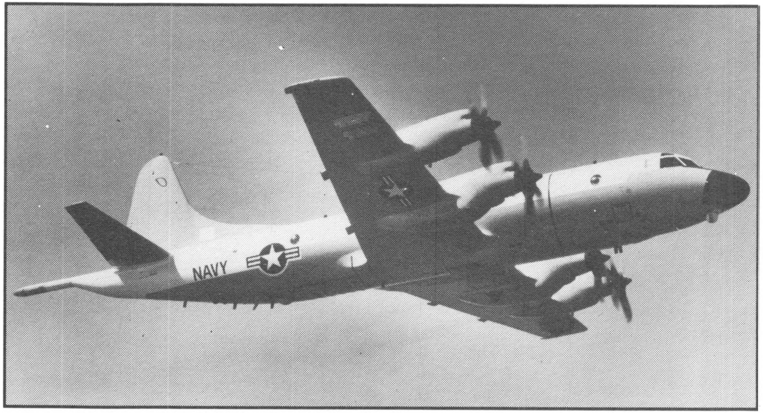
A medium-range four-turboprop airliner, the Lockheed Electra first flew in 1957. Early in its career the Electra suffered two disastrous crashes, the result of metal fatigue. A number of modifications were required by the airworthiness authorities, including strengthening of the wing and engine nacelle structure and the provision of thicker wing skins. Two versions of the Electra were built: the L-188A and the longer-range L-188C. A total of 168 Electras were completed of which 75 are still in service. The L-188C seats 98 passengers, cruises at 652km/h and has a range of 4,458km. *Country of origin:* USA. *Silhouette:* L-188C. *Picture:* L-188A.

Lockheed P-3 Orion

Confusion: Electra, 'May', 'Coot'

Power: 4 × T.56 turboprops *Span:* 30.37m *Length:* 35.61m



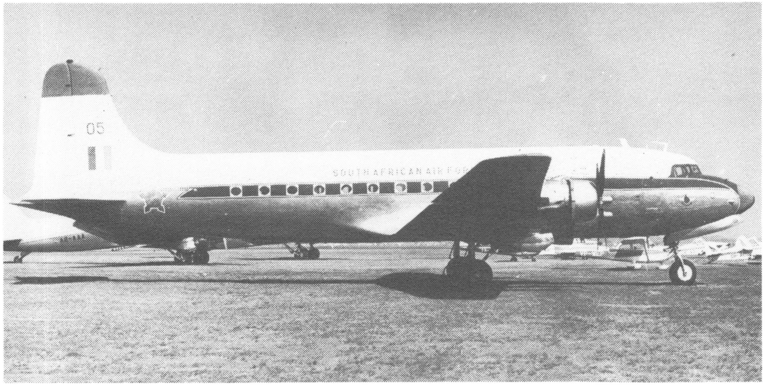


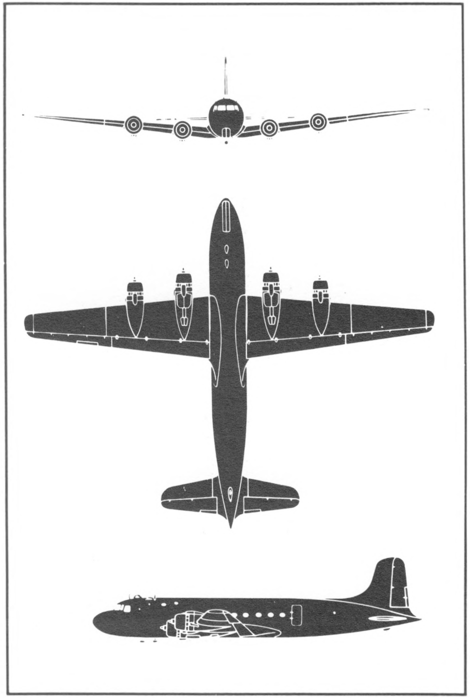
A development of the civil Lockheed Electra, the P-3 Orion long-range anti-submarine aircraft first flew in 1958. Carrying a crew of 10, the Orion is equipped with sophisticated search equipment, including the distinctive tail-mounted magnetic anomaly detector (MAD) probe. Armament includes torpedoes and depth charges. A number of versions of the Orion have been built, including the CP-140 for Canada and EP-3 ELINT aircraft. The avionics of the Orion have been continuously updated. Over 620 Orions have been delivered. The P-3C Orion has a four-engine loiter endurance of 12.3h and patrol speed is 381km/h. An AEW version of the Orion is the P-3 Sentinel, with a large circular radome mounted above the rear fuselage. *Country of origin:* USA. *Silhouette and picture:* P-3C.

Confusion: DC-6, DC-7

Douglas DC-4/C-54 Skymaster

Power: 4 × R-2000 piston engines *Span:* 35.8m *Length:* 28.6m



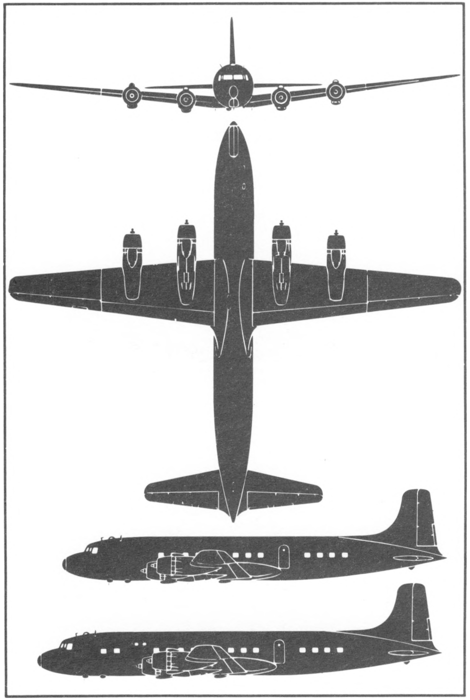


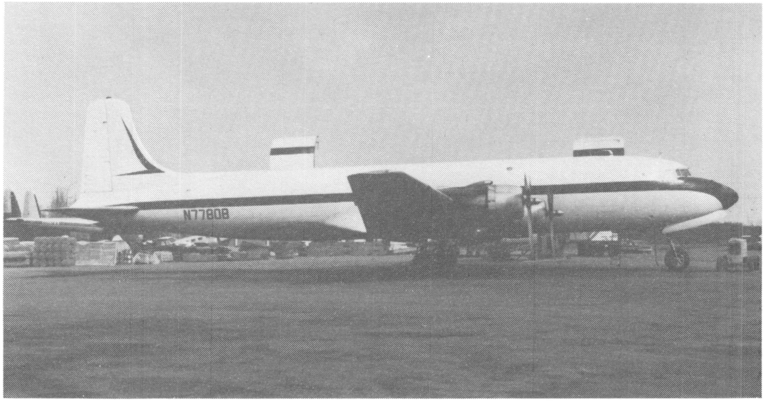
First flown as long ago as 1938, the DC-4 was widely used in military as well as civil forms. The Air Force variant was known as the C-54 Skymaster and the naval version as the R-5D. As an airliner the DC-4 seats 44 passengers, cruises at 363km/h and has a range of 2,480km. Military versions have a large freight door on the port side. Many Skymasters later found their way onto the civil market. About 30 Skymasters remain in military service round the world and 24 DC-4s. *Country of origin:* USA.

Douglas DC-6

Confusion: DC-4, DC-7

Power: 4 × R-2800 piston engines *Span:* 13.58m *Length:* 30.66m



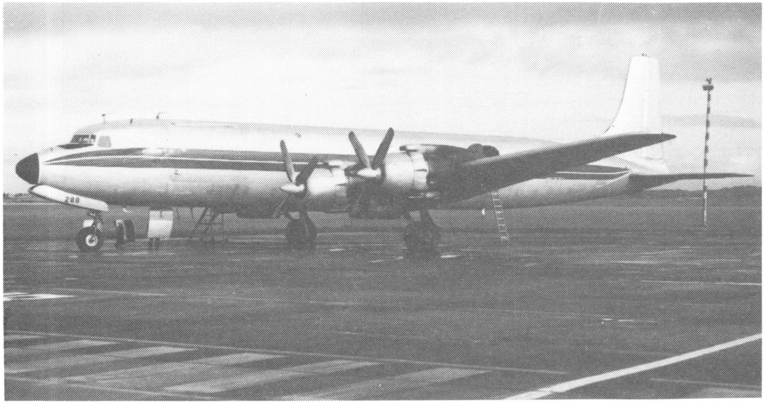


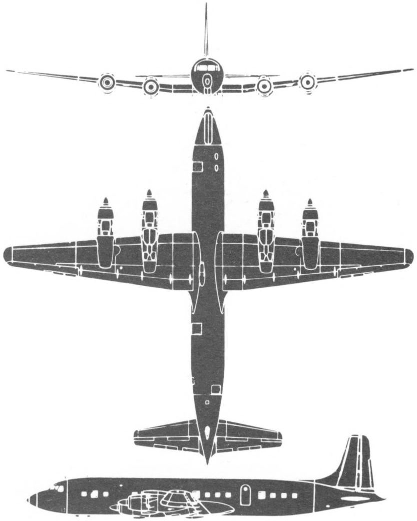
A stretched, pressurised version of the DC-4, the DC-6 first flew in 1946 and 176 were built. Some air forces also acquired DC-6s. The DC-6A was a freighter with a new fuselage, while the DC-6B was a 54-passenger airliner version of the DC-6A. The military DC-6A was designated C-118A. Cruising speed of the DC-6 is 501km/h and range 6,112km. The C-118 Liftmaster, still used by air forces around the world, can carry 76 fully equipped troops, 60 stretchers or 12,247kg of cargo. With a maximum level speed at 5,520m of 579km/h, the C-118 has a normal range of 6,212km. A total of 76 DC-6/Liftmasters remain in airline service. *Country of origin:* USA. *Main silhouette:* DC-6B; *upper side view:* DC-6. *Picture:* C-118.

Confusion: DC-4, DC-6, Britannia

Douglas DC-7B/C

Power: 4 × R-3350 piston engines *Span:* (-7C): 38.86m *Length:* 34.21m



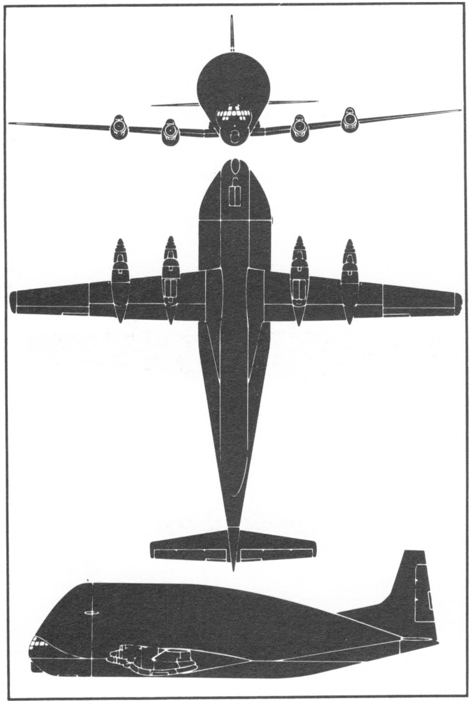


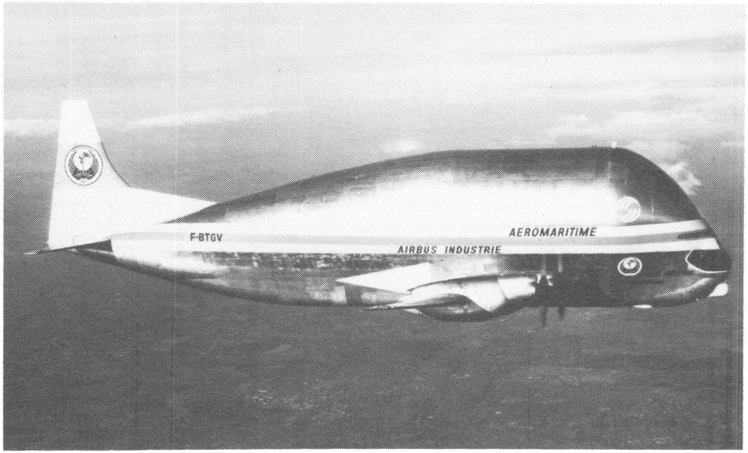
A stretch of the DC-6B fuselage produced the DC-7, seating up to 95 coach-class passengers. A change to Wright turbo-compound engines raised weight and improved performance. More fuel was provided on the -7B, which had intercontinental range. The last of the DC-4/DC-7 line was the -7C with increased wingspan and a longer fuselage. Some 120 DC-7Cs were built and a number were converted to DC-7CF freighters. The DC-7C cruises at 499km/h for up to 6,595km. Production of the DC-7 series ran to 120 DC-7s, 96 DC-7Bs and 120 DC-7Cs; these totals include some aircraft converted to DC-7F freighters. *Country of origin:* USA. *Silhouette and picture:* DC-7C.

Aero Spacelines Guppy

Confusion: —

Power: 4 × R4360 piston engines or 4 × Allison 501 turboprops *Span:* 47.62m *Length:* 43.84m



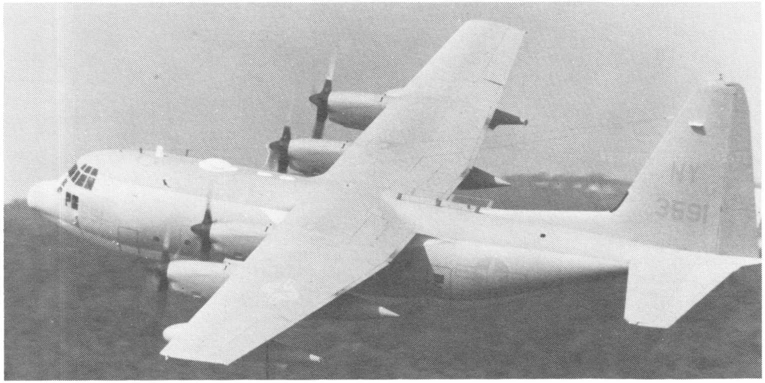


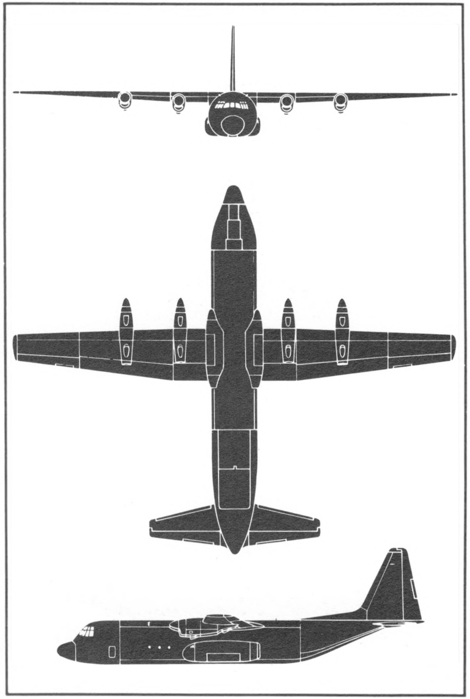
Retaining the wings and engines of the Boeing Stratocruiser airliner, the Aero Spacelines Guppy has a vast fuselage originally designed to accommodate space launcher stages. Subsequently the type has been used to airlift other specialised freight, including wings for the Airbus A300. In 1980 Airbus Industrie acquired production rights to the design. Range with maximum payload is 813km and maximum cruising speed is 463km/h. The normal flight crew is four. Variants are known as Pregnant Guppy, Super Guppy and Mini-Guppy. *Country of origin:* USA. *Silhouette and picture:* Guppy.

Lockheed C-130 Hercules

Confusion: Belfast, 'Cub'

Power: 4 × T56 turboprops *Span:* 40.41m *Length:* 29.78m



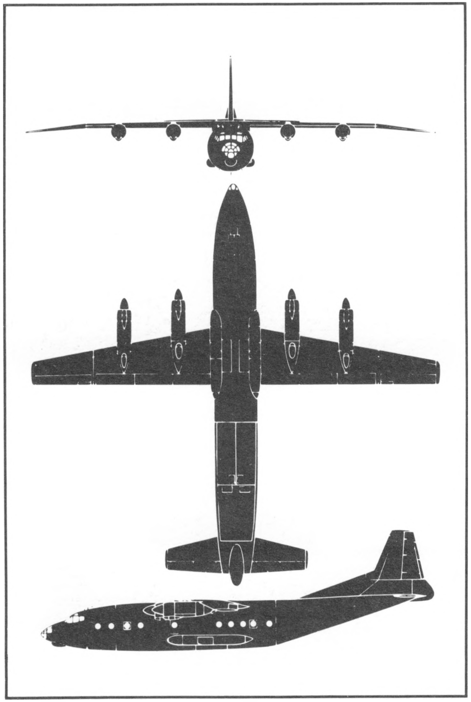


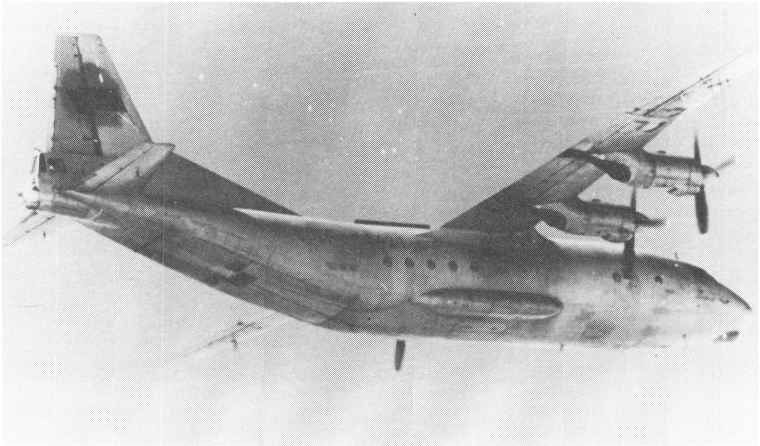
One of the most successful military transports built in the West, the C-130 Hercules first flew in 1954 and has been in production since 1955. Over 1,850 have been built for operators in 55 nations. There are many versions, including the C-130D for Arctic work, WC-130B and -130E for weather reconnaissance, AC-130E gunship, KC-130F Marine Corps tanker, C-130F for the US Navy, -130H and -130N for rescue, -130P for helicopter refuelling, EC-130Q for Navy communications and C-130K for the RAF. Twin under-body strakes are being fitted to many Hercules and 30 RAF K-130s have a 4.57m fuselage-extension, designated Hercules C Mk 3. A civil version is designated L-100. The C-130H, which carries 92 troops or freight, cruises at 547km/h and has a range with maximum payload of 3,943km. *Country of origin:* USA. *Silhouette:* L-100. *Picture:* KC-130T.

Antonov An-12 'Cub'

Confusion: Hercules, Belfast

Power: 4 × Ivchenko turboprops *Span:* 38m *Length:* 37m



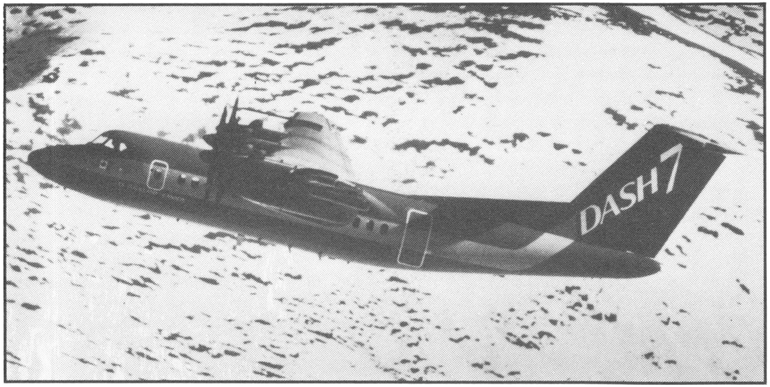


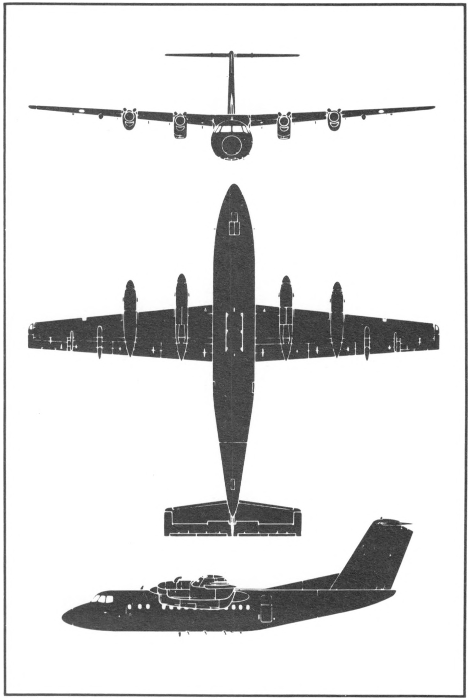
Over 900 An-12s, code-named 'Cub', have been built in both military and civil forms. The 'Cub' has a crew of five and can carry 100 paratroops, vehicles, guns or missiles, loaded through the large rear ramp. 'Cubs' serving with the Russian and other air forces have a twin 23mm gun turret in the tail. This is replaced by a fairing on the civil version, which is known as the An-12V. Electronic intelligence and electronic countermeasures versions are coded 'Cub B' and 'Cub C' and 'Cub D'. The 'Cub' cruises at 550km/h and has a range of 3,400km. *Country of origin:* Ukraine. *Silhouette:* An-12V; *Picture:* 'Cub A'.

Confusion: Hercules

DH DHC Dash 7

Power: 4 × PT6 turboprops *Span:* 28.35m *Length:* 24.58m



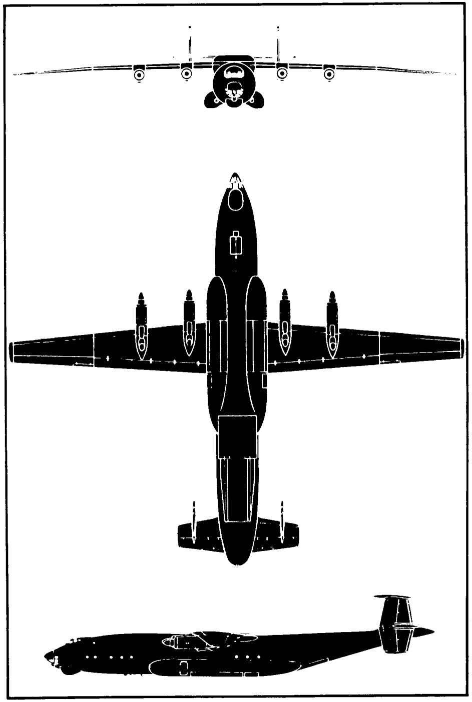


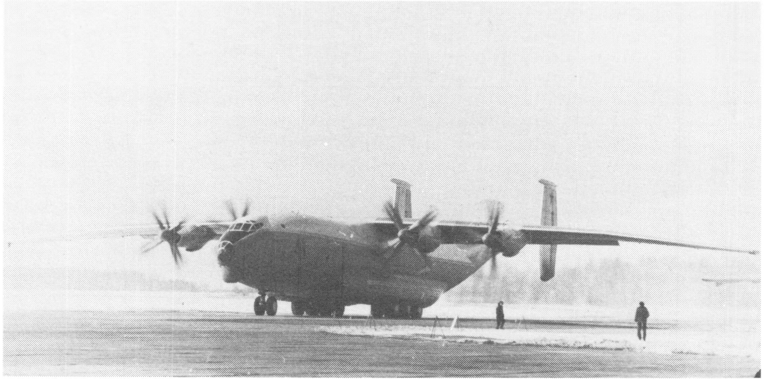
Capable of very short take-offs and landings, the DHC-7 Dash 7 seats 50 passengers or carries a mixture of passengers and freight. First flown in 1975, 67 Dash 7s are in airline service. The Dash 7 operates over short routes and in addition to its good airfield performance, is very quiet in operation. Cruising speed is 379km/h and range is 1,120km. Initial version was the Series 100 and this was followed by the longer-range Series 150. All-cargo versions are designated Series 101 and 151. *Country of origin:* Canada. *Silhouette and picture:* Dash 7.

Antonov An-22 'Cock'

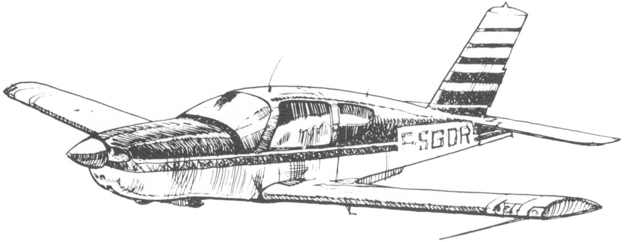
Confusion: 'Cub'

Power: 4 × Kuznetsov turboprops *Span:* 64.4m *Length:* 57.8m



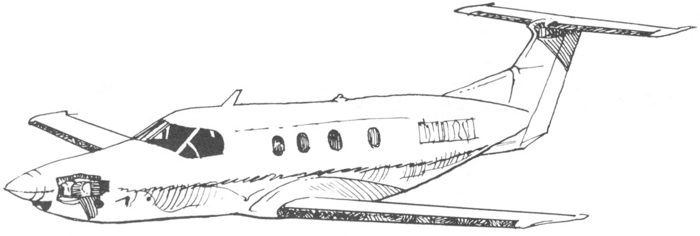


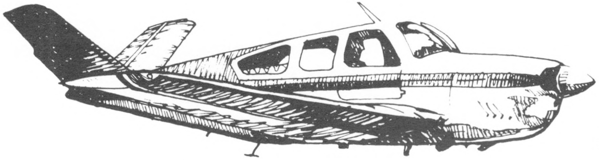
The Antonov An-22 Antheus, code-named 'Cock', is a heavy freighter for military and civil use. A crew of five/six, 28/29 passengers and a wide variety of vehicle, gun, missile and freight loads can be carried. The first 'Cock' flew in 1965 and the type went into service in 1967. Some 45 of the type remain in service. An unusual feature is the fitting of two radomes in the nose. The four turboprop engines drive large contra-rotating propellers. 'Cock' has a range of 10,950km and cruises at 679km/h. The An-22 set a number of world records, including no fewer than 14 payload-to-height marks on one occasion in 1967. *Country of origin:* Ukraine.



SOCATA TB 20 Trinidad

Pilatus PC-12



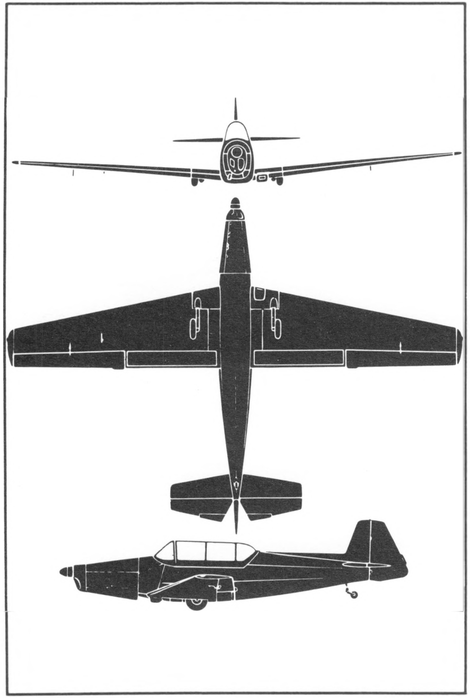


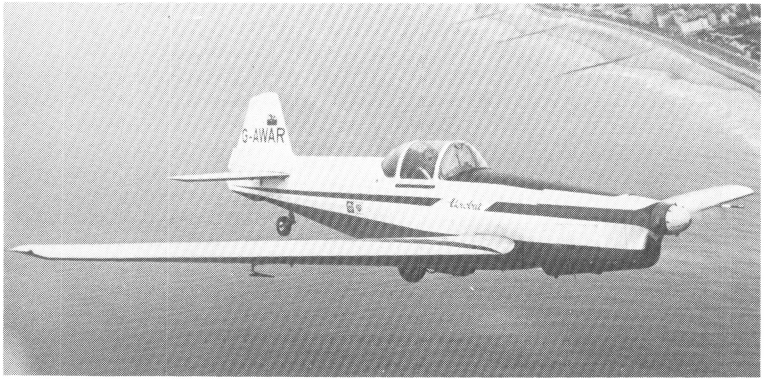
Beech Bonanza V35

Zlin 526/726

Confusion: Meta-Sokol

Power: 1 × Avia piston engine *Span:* 9.88m *Length:* 7.98m



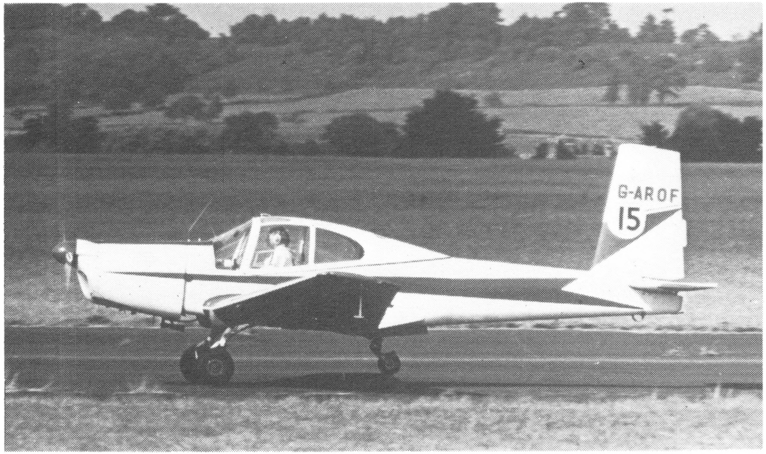


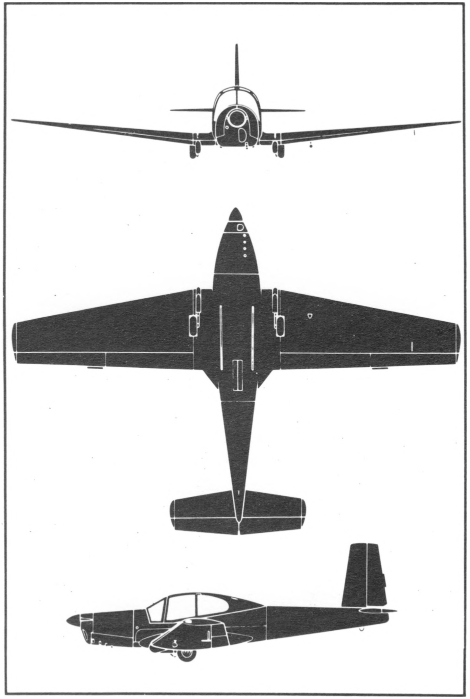
The Zlin Trener, Trener-master and Akrobat series has been in production in Czechoslovakia since 1947; more than 1,400 aircraft have been built. First of the series to feature a retractable undercarriage was the Z 326 of 1957. The single-seat competition aircraft were designated Akrobats and scored a number of successes in international aerobatics contests. Various engines have been used but all models have the distinctive swept wing leading-edge and large, angular rudder. Last of the series is the Z 726, which first flew in 1973. Generally similar to the Z 526F, it has a slightly shorter wing and metal-covered rudder and elevators. Production ended in 1977 after 32 had been built. Maximum cruising speed of the 526F is 210km/h. *Country of origin:* Czechoslovakia. *Silhouette:* Zlin 526. *Picture:* Zlin 526A Akrobat.

Confusion: Zlin 526

CZAAL L-40 Meta-Sokol

Power: 1 × Walter Minor piston engine *Span:* 10.06m *Length:* 7.54m



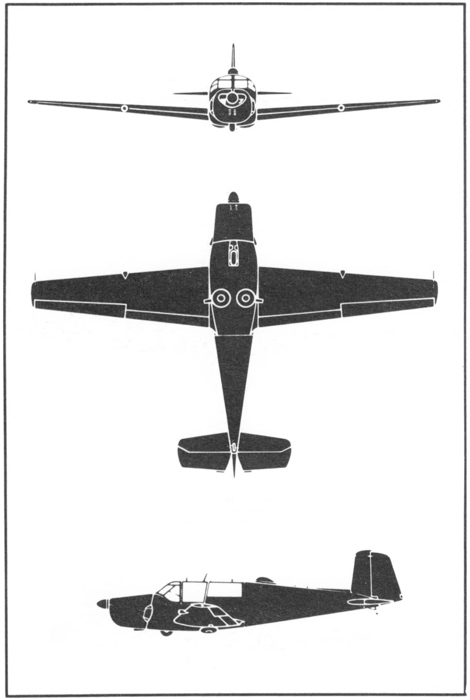


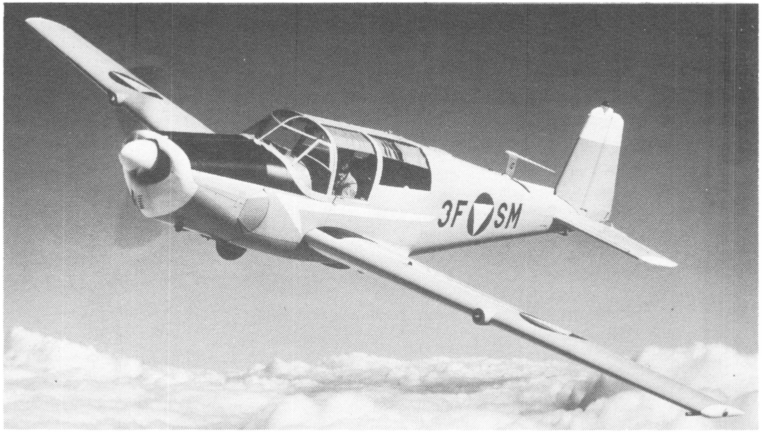
Over 200 L-40 Meta-Sokols were built between 1954 and 1961, most of which were exported. A number remain in service in Europe. On the ground the type's most easily identified feature is its unique reverse tricycle undercarriage. The mainwheels are half-concealed when retracted. Also distinctive is the tall, almost parallel fin and rudder. Cruising speed is 220km/h, maximum range 1,107km, maximum rate of climb at sea level is 192m/min and service ceiling 4,500m. *Country of origin:* Czechoslovakia.

Saab Safir

Confusion: Neiva Universal

Power: 1 × Lycoming piston engine *Span:* 10.6m *Length:* 8.03m



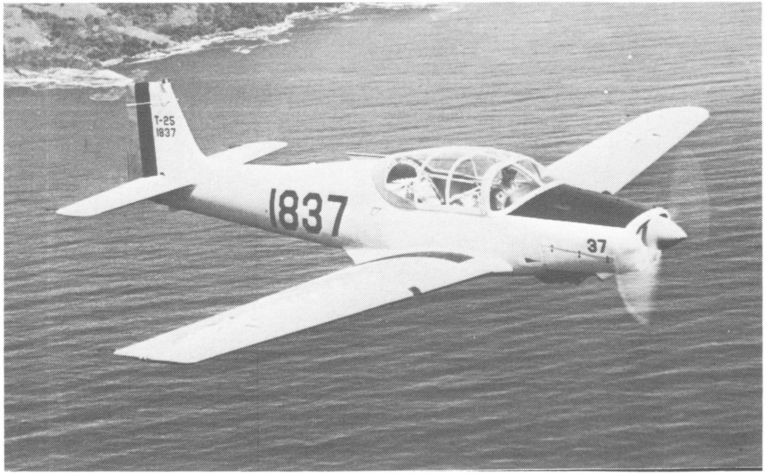


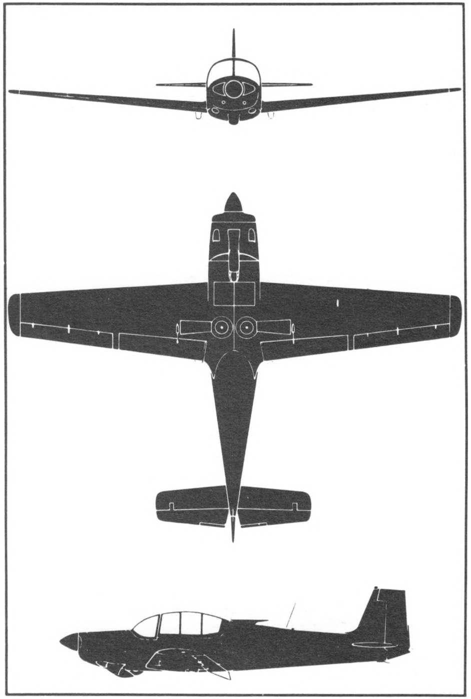
First flown in 1945, the Saab-91 Safir was built in four main versions: the Saab-91A, powered by a 145hp de Havilland Gipsy Major 10; the Saab-91B, powered by a 190hp Lycoming; the Saab-91C, widely used for private and light commercial work and as an air force trainer; and the Saab-91D, generally similar to the -91C, but powered by a 180hp Lycoming driving a constant-speed propeller. Military Safirs remain in service in Sweden. Others remain in private use in Europe. Maximum speed at sea level is 266km/h. *Country of origin:* Sweden. *Silhouette and picture:* Saab-91D.

Confusion: Pilatus P-3

Neiva N621 Universal

Power: 1 × Lycoming piston engine *Span:* 11m *Length:* 8.6m



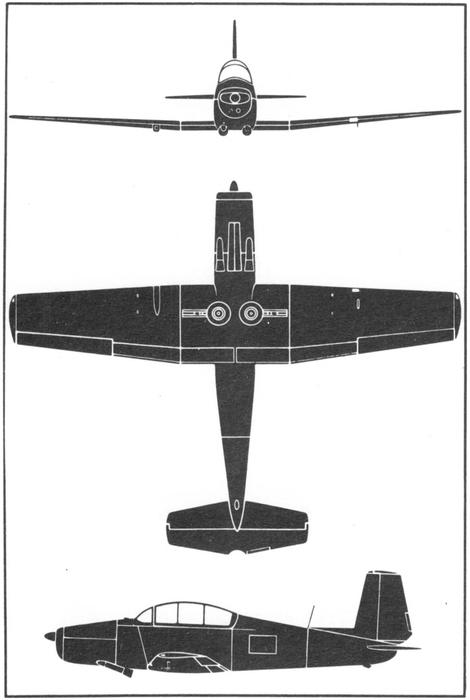


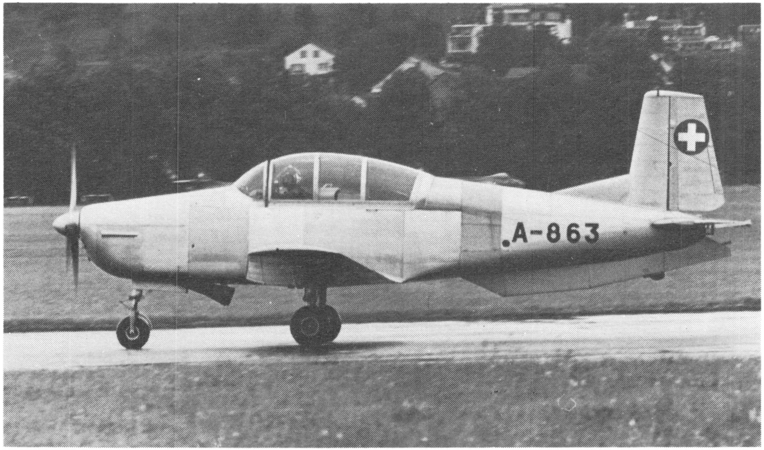
Designed as a replacement for Brazilian Air Force Fokker S-11/S-12s and North American T-6 Texans, the Neiva flew for the first time in 1966. The Brazilian Air Force designation for this tricycle-undercarriage two/three seater is the T-25. About 160 T-25s were delivered to the Brazilian Air Force, together with 30 of an armed version known as the AT-25. Two underwing hard-points are provided for 7.62mm machine gun pods. Maximum cruising speed is 285km/h. *Country of origin:* Brazil.

Pilatus P-3

Confusion: Universal

Power: 1 × Lycoming piston engine *Span:* 10.4m *Length:* 8.75m

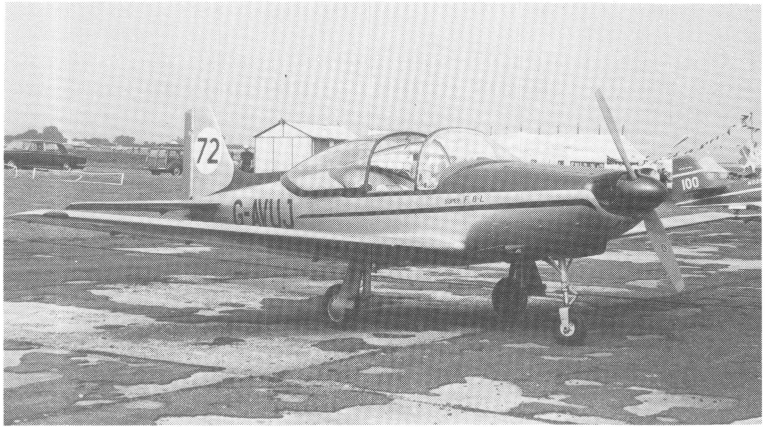


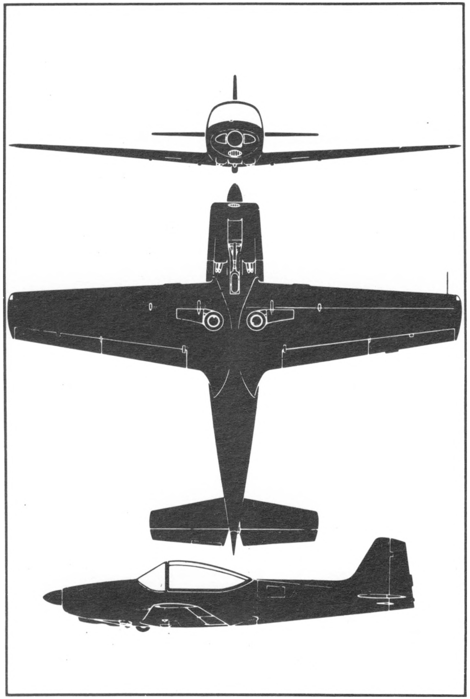


The Pilatus P-3 is an all-metal tandem two-seat trainer built primarily for the Swiss Air Force; another six aircraft went to Brazil. First flight was in 1953, with the first of 18 pre-production aircraft following the next year. Powered by a 260 hp Lycoming, the P-3 has a cruising speed of about 249km/h. Suitable for primary and advanced training, including aerobatics, night flying and instrument flying, the P-3 can be equipped for weapon training with one 7.9mm machine gun in an underwing pod, four practice bombs or two air-to-ground rockets. *Country of origin:* Switzerland.

Laverda Super Falco F8L

Power: 1 × Lycoming piston engine *Span:* 8m *Length:* 6.5m



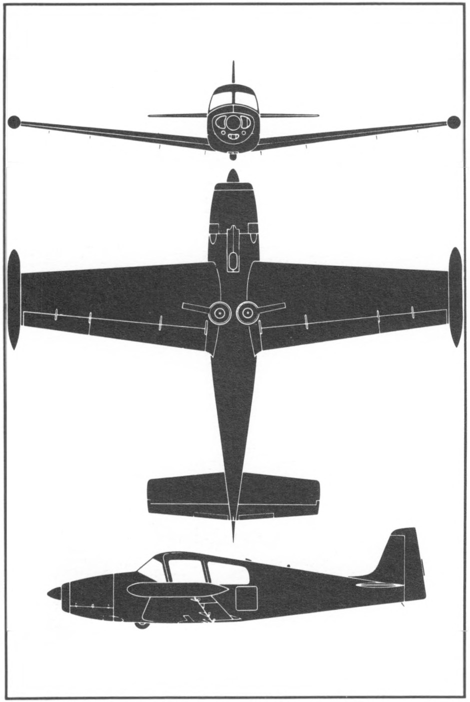


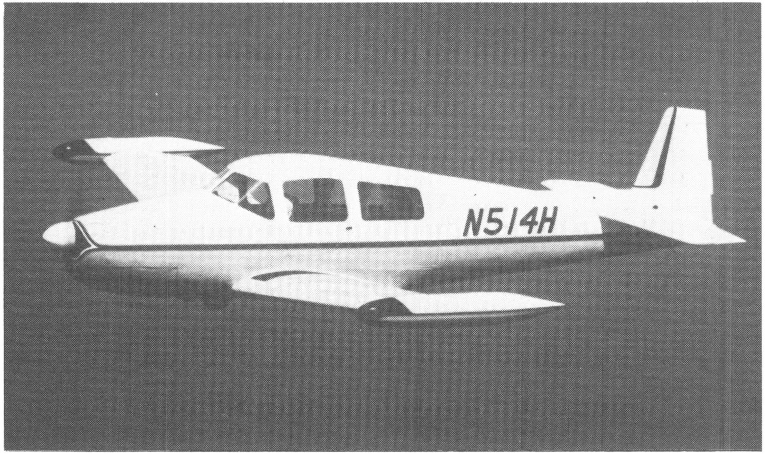
The Falco first flew in 1955, powered by a 90hp Continental. Since then four production versions have been built: F8L Series I, an initial production batch of 10 built by Aviamilano in 1956 and powered by 135hp Lycomings; F8L Series II, also built by Aviamilano, with a 150hp Lycoming; F8L America, built by Aeromere for the US market; Super Falco Series IV, generally similar to the F8L America but powered by a 160hp Lycoming and built by Laverda (the former Aeromere company). An extremely clean design, the Super Falco seats two side-by-side and is fully aerobatic. Maximum cruising speed is 290km/h and maximum sea-level climb rate 300m/min. *Country of origin:* Italy. *Silhouette and picture:* Super Falco.

Navion Rangemaster

Confusion: Super Falco

Power: 1 × Continental piston engine *Span:* 10.59m *Length:* 8.38m



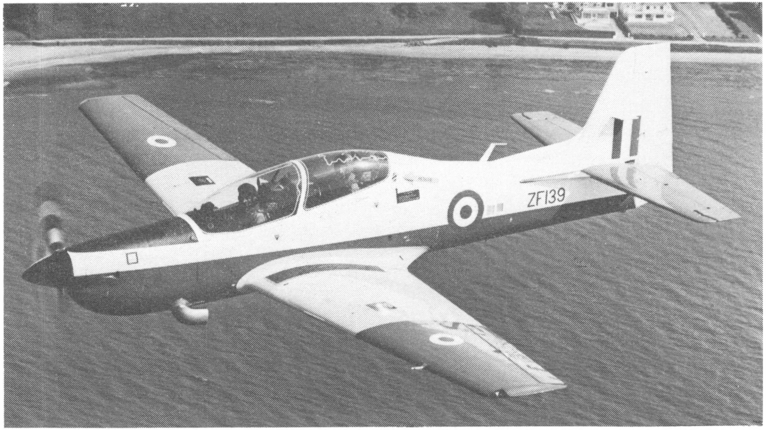


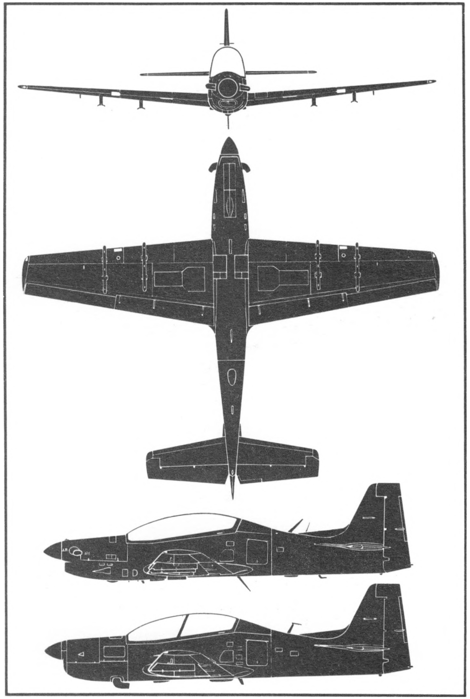
The five-seat Navion Rangemaster is a much modified development of the original Navion, produced first by North American Aviation and later, between 1948 and 1950, by Ryan, which acquired the rights in 1947. The Rangemaster retains the original Navion wing and undercarriage but is otherwise completely re-engineered. First flight was in 1960, with production commencing the next year. Fitted with wingtip fuel tanks, the type has excellent range and cruises at more than 298km/h on its 260hp Continental. A large number of Navions of all types are still active, particularly in the USA. *Country of origin:* USA.

Confusion: PC-7, Mentor, Epsilon

EMBRAER EMB-312 (T-27)/Shorts S312 Tucano

Power: 1 × PT6A turboprop or 1 × TPE 331-12 turboprop *Span:* 11.14m *Length:* 9.86m



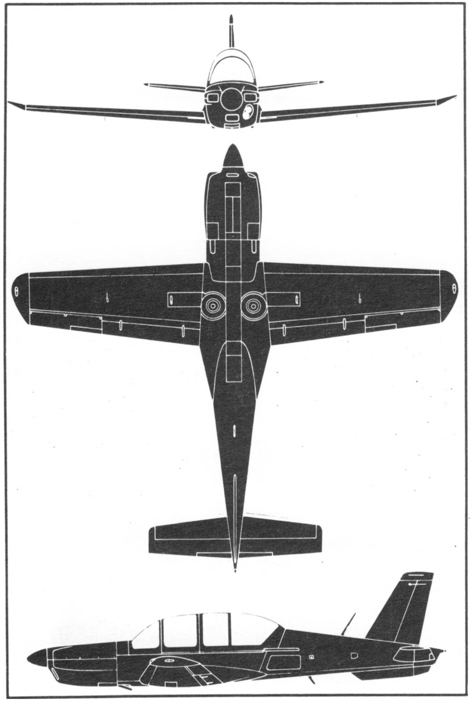


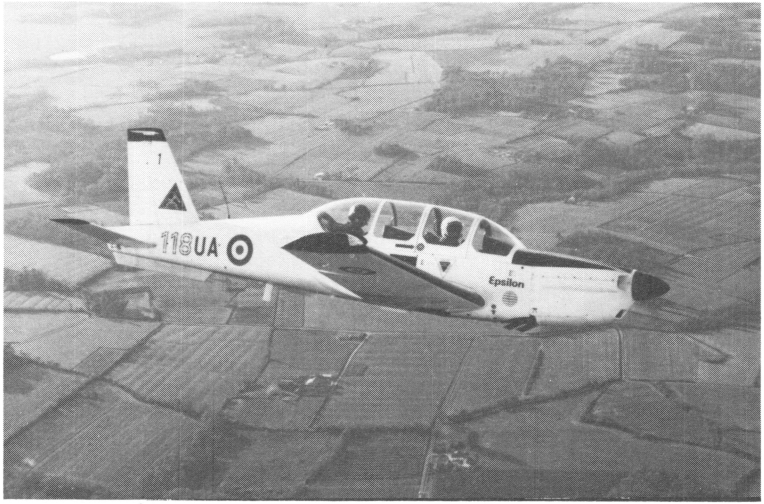
First flown in August 1980, the two-seat T-27 Tucano is in service with the Brazilian Air Force, which has 115 and several other air forces have Tucanos. The Tucano is designed for pilot training, but is also suitable for counter-insurgency work. Egypt has ordered 120 Tucanos. Most of the Egyptian order has been licence-built. The RAF ordered 130 of a re-engineered and developed version called Shorts S312. This is built entirely in Northern Ireland. The engine is a Garrett TPE 331 turboprop. External differences include nose, dorsal fin and cockpit hood. A stretched and re-engined version of the T-27 is known as Tucano H. *Countries of origin:* Brazil/UK. *Silhouette:* EMB-312; *lower side view and picture:* S312.

Socata TB 30 Epsilon

Confusion: Tucano, PC-7

Power: 1 × Lycoming piston engine *Span:* 7.92m *Length:* 7.59m



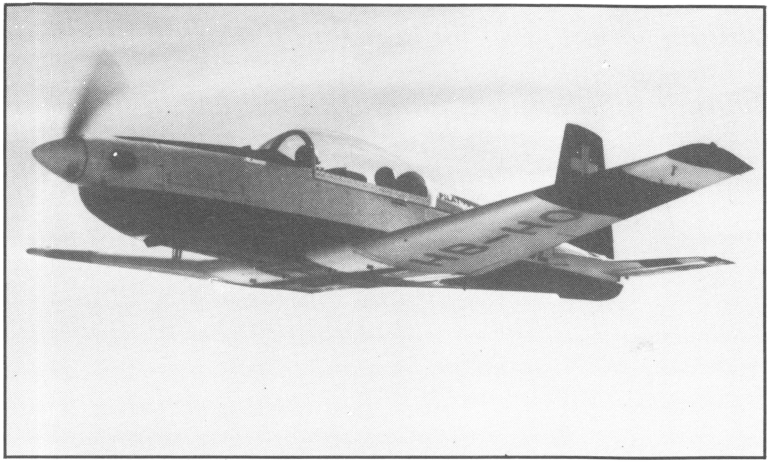


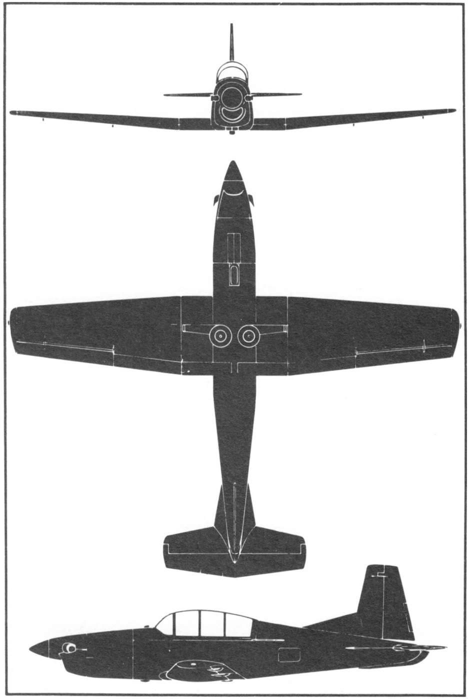
The TB 30 Epsilon is the French Air Force's standard primary trainer. It entered service in 1983 and 150 have been delivered. An armed version is offered for export, fitted with four underwing hardpoints to carry a variety of stores, including two 7.62mm machine gun pods. Maximum speed of the Epsilon trainer is 380km/h and endurance 3.75h. Pilots trained on the Epsilon will progress to the Alpha Jet. The type has been exported to Portugal and Togo. *Country of origin:* France.

Confusion: T-34C, Tucano, Epsilon, PC-9

Pilatus PC-7 Turbo-Trainer

Power: 1 × PT6 turboprop *Span:* 10.4m *Length:* 9.75m



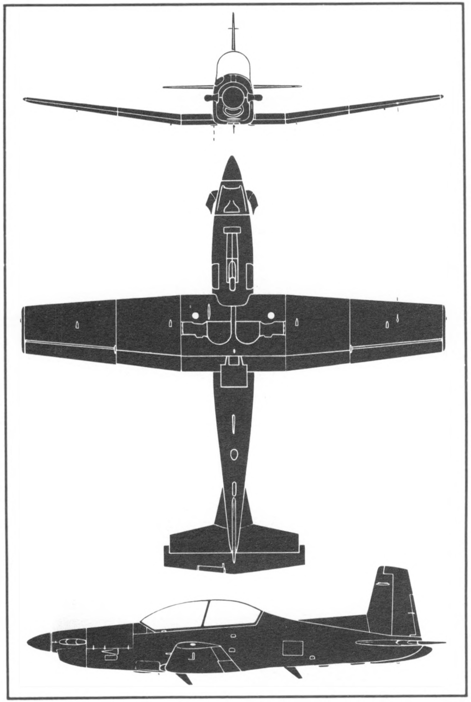


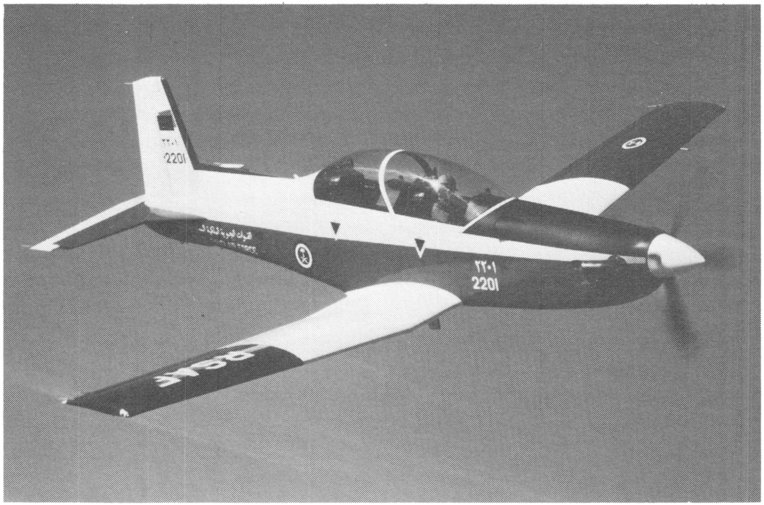
The PC-7 Turbo-Trainer is designed for basic, intermediate and aerobatic training. Over 400 have been ordered by 18 air forces. Principal users are Bolivia, Iraq, Malaysia, Mexico and Switzerland, which ordered 40. All PC-7s are fitted with six underwing hardpoints as standard and up to 1,000kg of stores can be carried. At least two PC-7s have been civilian registered. Powered by a 550hp Pratt & Whitney turboprop, the PC-7 has a cruising speed of more than 300km/h. *Country of origin:* Switzerland.

Pilatus PC-9

Confusion: PC-7, T-34C, Tucano, Epsilon

Power: 1 × PT6 turboprop *Span:* 10.12m *Length:* 10.17m



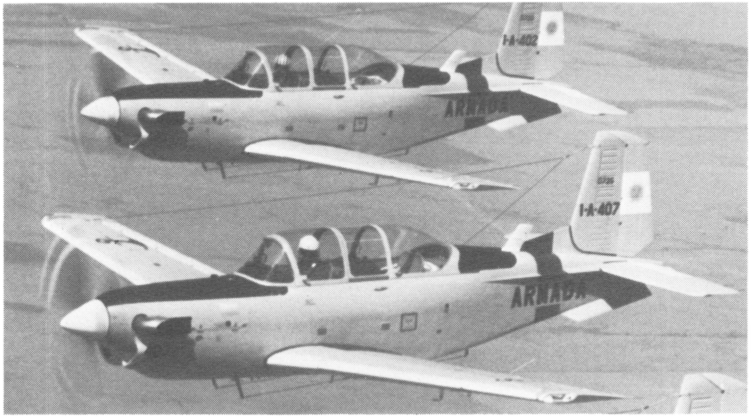


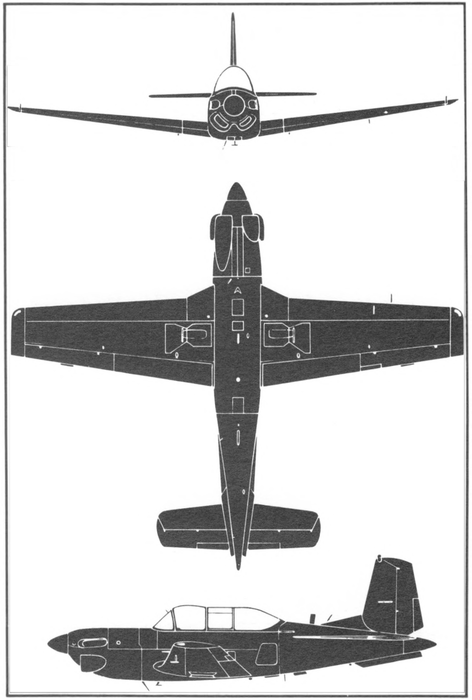
Although outwardly similar to the PC-7, the PC-9 is 90 per cent a new aircraft. Main external differences lie in the shape of the cockpit hood, longer dorsal fin and increased dihedral on the outer wing sections. First flown as a pre-production aircraft in May 1984, the PC-9 has attracted more than 126 orders, of which 48 aircraft are being licence-built in Australia for the RAAF. The PC-9 has a maximum operating speed of 593km/h and maximum range of 1,642km. *Country of origin:* Switzerland.

Confusion: PC-7, KM-2B, Tucano, Epsilon

Beechcraft T-34 Mentor/T-34C

Power: 1 × Lycoming piston engine or 1 × P & W turboprop (T-34C) *Span:* (T-34): 10m *Length:* (T-34): 7.9m



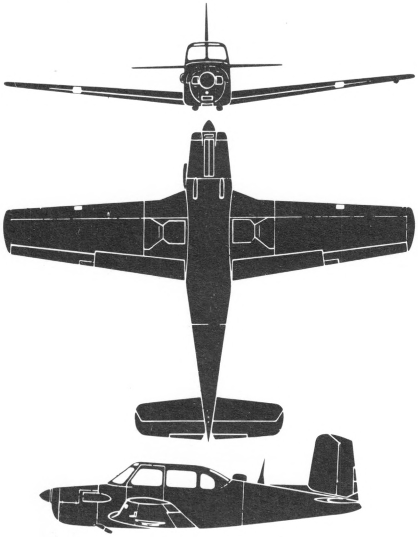


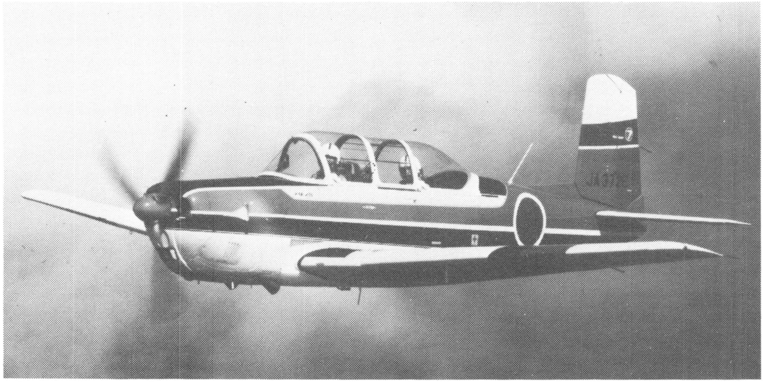
Derived from the Bonanza 33 series, more than 450 piston-engined T-34As were built for the USAF and a further 423 T-34Bs for the US Navy. The T-34C, which first flew in 1973, is extensively revised and is powered by a 715shp Pratt & Whitney turboprop. The US Navy ordered 334 T-34Cs. Six civil versions are in service in Algeria and 119 armed T-34C-1s have been exported. *Country of origin:* USA. *Silhouette and picture:* T-34C.

Fuji KM-2B

Confusion: T-34

Power: 1 × Lycoming piston engine *Span:* 10m *Length:* 8.04m



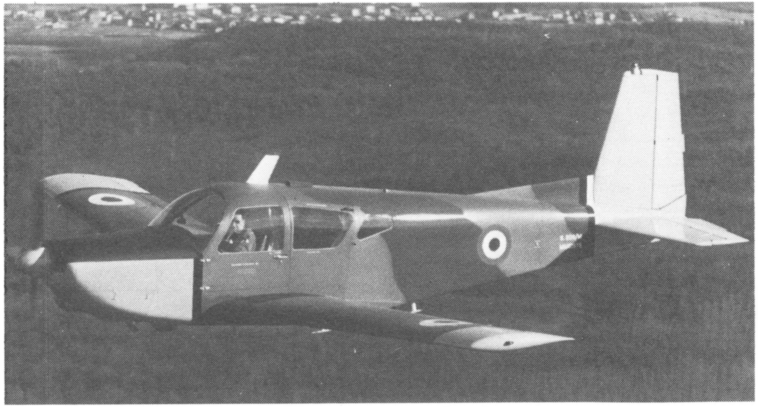


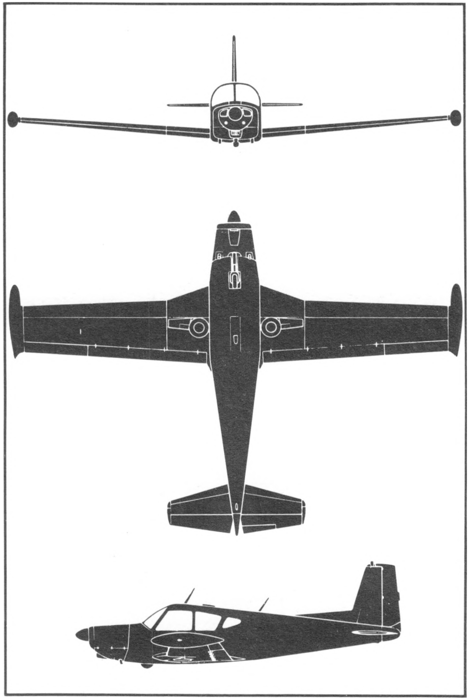
The KM-2B is a modification of the original KM-2 development of the Beechcraft Mentor, combining the airframe and powerplant of the KM-2 with the two-seat tandem cockpit of the T-34A Mentor. The KM-2B first flew in 1974 and was selected by the Japan Air Self-Defence Force (JASDF) to replace its T-34As in the primary training role the following year. The JASDF ordered 50 examples of the type, designating them T-3. The first of these made its first flight on 17 January 1978. Powered by a 340hp Lycoming flat-six engine, the KM-2B has a cruising speed of about 254km/h, maximum level speed of 367km/h and service ceiling of 8,170m. A modified version, now going into service, is the KM-2 Kai which carries the service designation T-5. *Country of origin:* Japan. *Silhouette:* KM-2. *Picture:* KM-2B.

Confusion: Ranger

SIAI-Marchetti S.205/S.208

Power: 1 × Lycoming piston engine *Span:* 10.86m *Length:* 8m



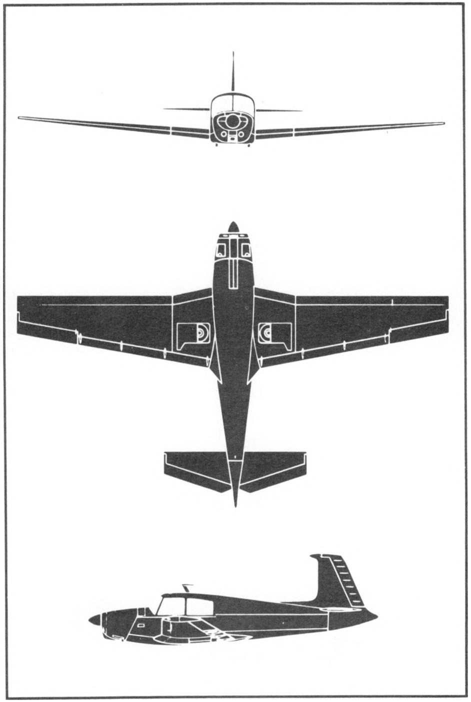


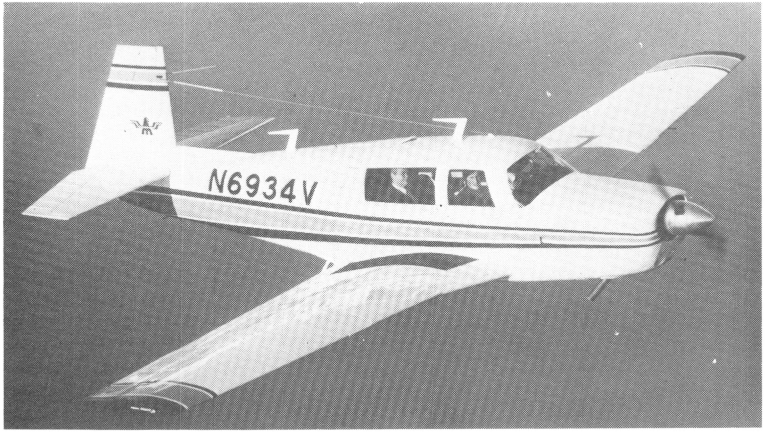
The S.205 four-seat all-metal light aircraft first flew in 1965. The type was designed from the outset to take a variety of engines, from 180 to 300hp, there is also a version with fixed undercarriage. A later version, the S.205AC powered by a 200hp Lycoming, was ordered by the Italian Aero Club. The first of 140 were delivered in 1977. The S.208, a five-seater based on S.205 components, flew for the first time in May 1967. In addition to an order for 40 from the Italian Air Force (S.208M), the S.208 was also delivered to customers in Europe and Africa. A version designated S.208AG was developed for general duties and featured a fixed undercarriage. Maximum cruising speed is 300km/h. *Country of origin:* Italy. *Silhouette:* S.208. *Picture:* S.208M.

Mooney Ranger

Confusion: S.205

Power: 1 × Lycoming piston engine *Span:* 10.67m *Length:* 7.06m



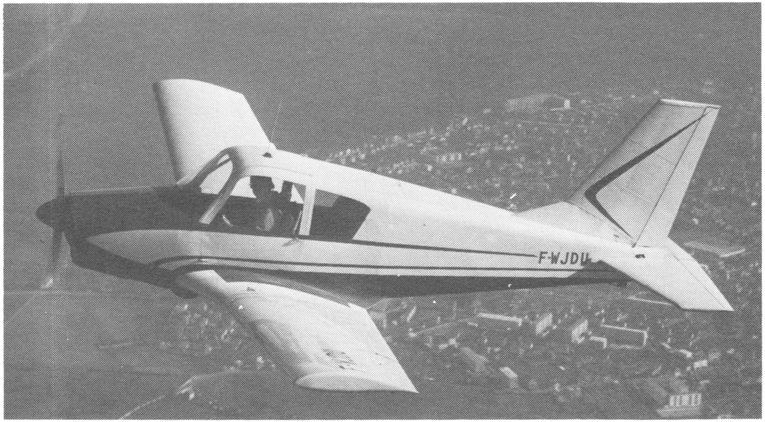


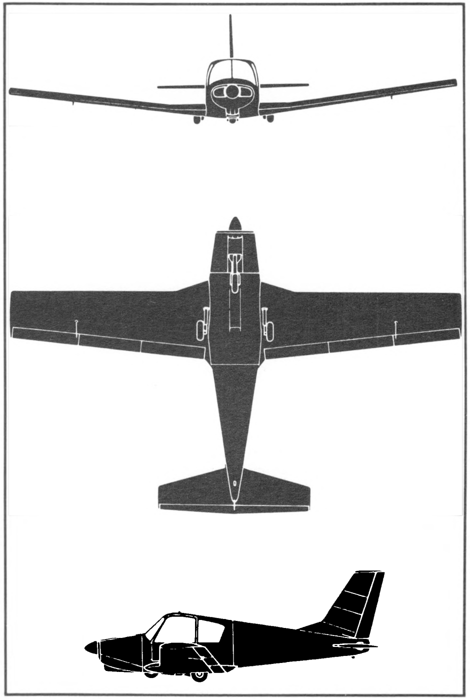
The four-seat all-metal Mooney Ranger is one of several Mooney light aircraft featuring the distinctive fin and rudder with its unswept leading-edge. Originally known as the Mark 21, the Ranger first flew in 1961, although the earlier M-20 had flown in 1953. Other models in the series are the Executive, with a 200hp Lycoming and the Mooney 201 (M20J), which first flew in 1976. The Mark 22 is a five-seat pressurised version which first flew in 1964. In mid-1986 the Mooney 205 appeared, which is developed from the 201. Another variant is the 252TSE (Turbo Special Edition). An increased length fuselage is fitted to the M20L. *Country of origin:* USA. *Silhouette:* Ranger. *Picture:* Mooney 201.

Confusion: Ranger, Picchio

Gardan/Socata GY-80 Horizon

Power: 1 × Lycoming piston engine *Span:* 9.70m *Length:* 6.64m



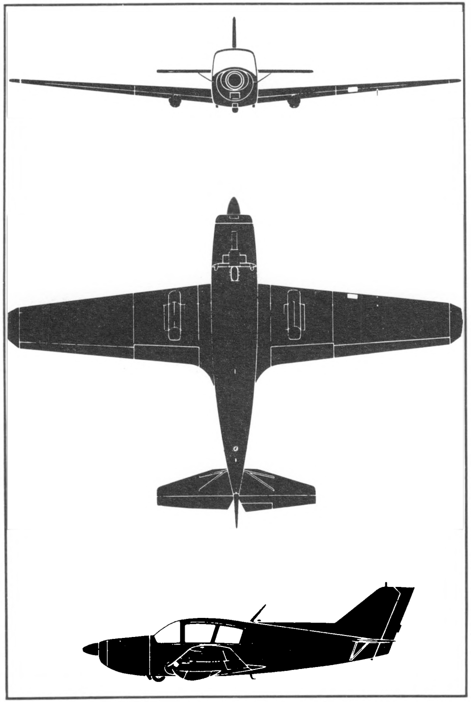


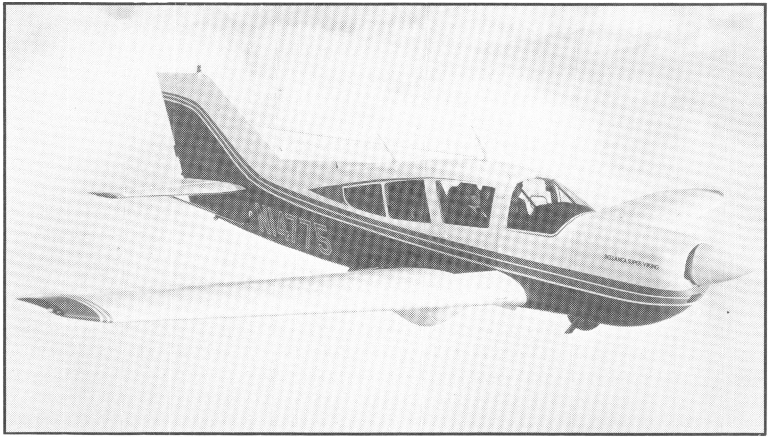
Designed by Yves Gardan, this four-seat all-metal light aircraft was put into series production by Sud Aviation from 1963. Four versions with engines of different power were originally offered. By mid-1968 more than 260 Horizons had been delivered to customers, mainly in Europe. Design and construction are conventional and the tricycle undercarriage retracts rearwards, with the wheels half concealed. Powered by a 160hp Lycoming, the Horizon has a cruising speed of about 233km/h. Other performance figures include a sea-level rate of climb of 201m/min and range with 200 litres fuel of 950km. *Country of origin:* France.

Bellanca Viking

Confusion: Picchio

Power: 1 × Continental piston engine *Span:* 10.41m *Length:* 8.02m



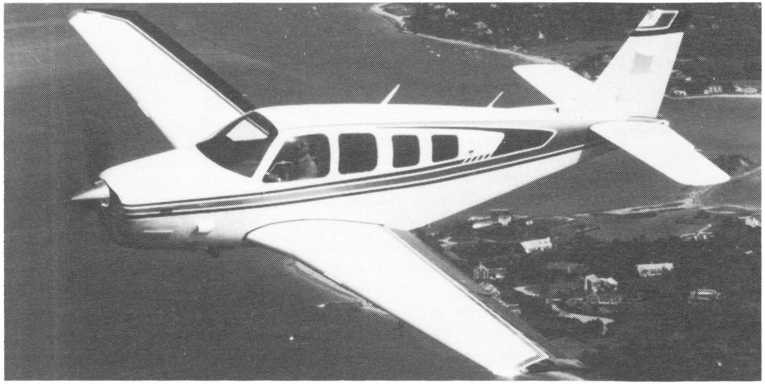


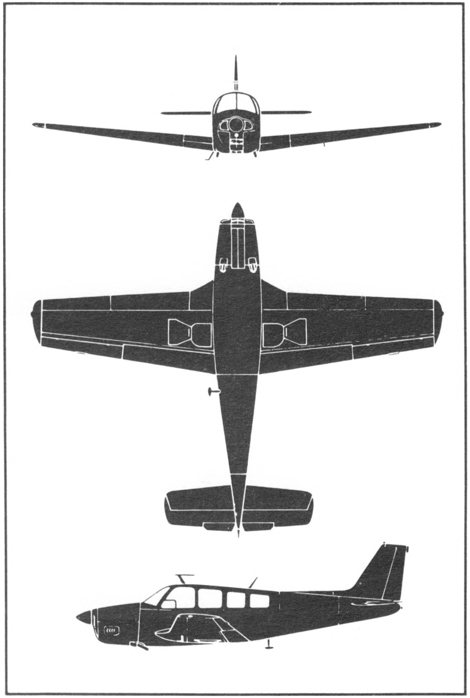
The Viking series of light aircraft consists of three models developed from the earlier Bellanca 260C and Standard Viking 300: the Model 17-30A Super Viking 300A, powered by a 300hp Continental; Model 17-31A Super Viking 300A, identical to the Model 17-30A with the exception of engine and propeller; and the Model 17-31ATC Turbo Viking 300A, which has two Rajay turbochargers added to its 300hp Lycoming. Total production of all models of Viking had reached more than 1,500 by the beginning of 1978. Production ceased in 1980. Accommodation is provided for four persons and top speed of all models is more than 357km/h. *Country of origin:* USA. *Silhouette:* Viking 300. *Picture:* Super Viking.

Confusion: Bonanza V35

Beechcraft Bonanza 33/36

Power: 1 × Continental piston engine *Span:* 10.21m *Length:* 8.13m (F33): 8.38m (A36)



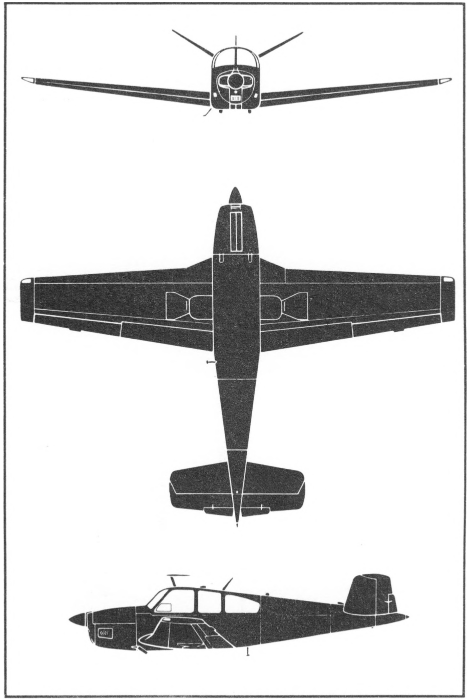


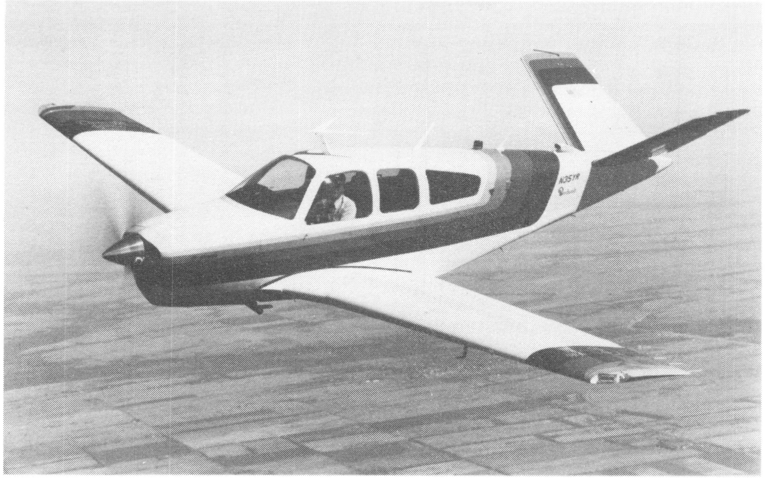
The Bonanza Model F33 is a four/five-seat executive aircraft, similar to the Bonanza Model V35 but featuring a conventional tail unit with swept fin and rudder. Originally known as the Debonair, it first flew in September 1959. An aerobatic version was built and is in service as a trainer in several air forces. Other Model F33s are used as trainers by US and European airlines. Production of the Model 33 had reached more than 3,100 by early 1991. The Bonanza Model A36 is a six-seat utility version and, like the Model 33, is powered by a 300hp Continental. Slightly longer than the Model 33, it is distinguished by an additional cabin window on each side of the rear fuselage. Production had reached more than 2,840 by early 1988. The Bonanza 36 has a maximum cruising speed of 340km/h. *Country of origin:* USA. *Silhouette:* A36. *Picture:* A36TC.

Beechcraft Bonanza Model V35B

Confusion: Bonanza 33/36

Power: 1 × Continental piston engine *Span:* 10.21m *Length:* 8.05m



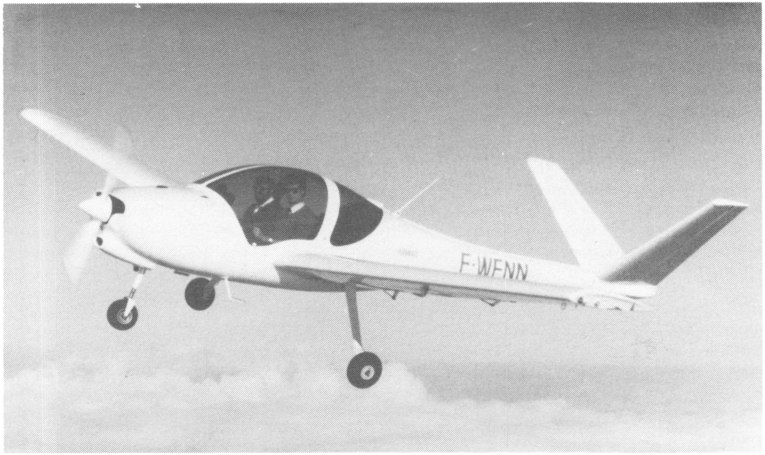


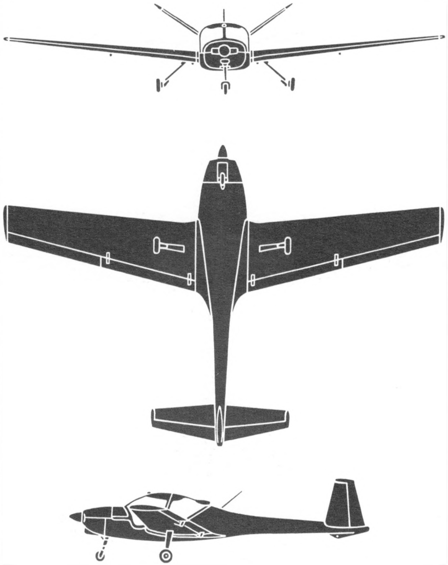
This four/five-seat V-tail light aircraft first flew in December 1945 and when production ceased in 1985, 10,000 V-tails had been built. Powered by a 285hp Continental driving a two-blade constant-speed propeller, the V35B has a cruising speed of about 322km/h. Externally the V35 Bonanza has changed little over the years and is immediately identifiable by the distinctive arrangement of the tail. Internal refinements continue to mirror changing tastes and advances in avionic equipment. *Country of origin:* USA. *Silhouette and picture:* V35B.

Confusion: Bonanza

Avions Pierre Robin ATL Club

Power: 1 × Converted Volkswagen piston engine *Span:* 10.25m *Length:* 6.72m



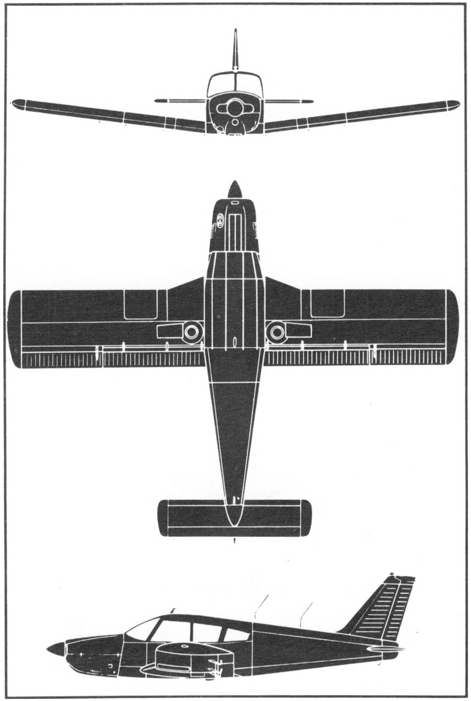


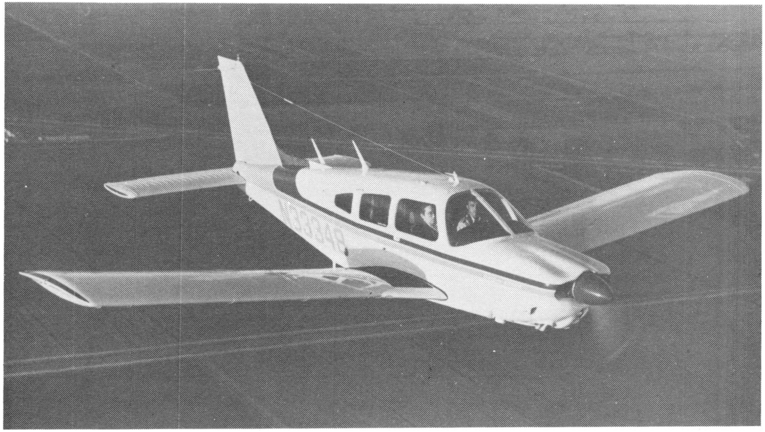
France has consistently produced good, cheap and economical to operate light club aircraft. The two-seat Robin ATL Club follows this pattern and 132 are in service. Powered by a converted Volkswagen motor car engine, the ATL Club is unusual in having forward swept wings, a very slim rear fuselage and a V-tail. Beyond the basic version (known in the United Kingdom as Bijou) there are developments including Model 88, the ATL Voyage with uprated engine, ATL2 + 2 with four seats and a re-engined version for the German market. The basic ATL Club has an economical cruising speed of 142km/h. *Country of origin:* France.

Piper PA-28R-200 Arrow

Confusion: Hr 100

Power: 1 × Lycoming piston engine *Span:* 9.82m *Length:* 7.5m



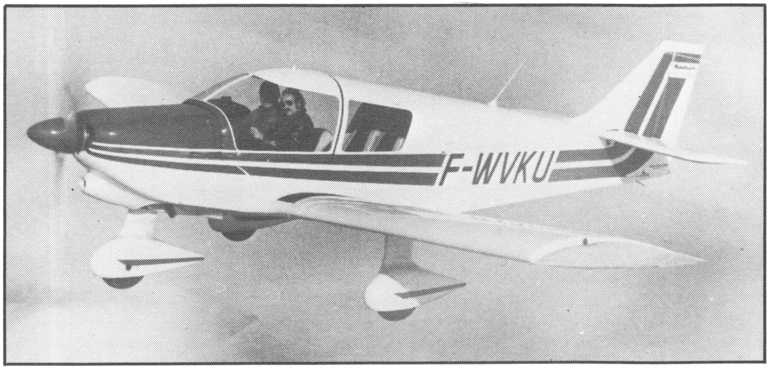


The Cherokee Arrow II is generally similar in appearance to the Cherokee Archer II but has a retractable undercarriage, more powerful engine and the untapered wings of the PA-28-180 Archer. First flown in 1975, it was superseded in 1977 by the PA-28R-201 Arrow III, which has the new longer-span tapered wings. Third in the Arrow series is the Turbo Arrow III, which is identical to the Arrow III but has a 200hp turbocharged Continental engine driving a two-blade constant-speed propeller. The Turbo Arrow III is a few inches longer than the standard aircraft and has a remodelled cowling with a larger airscoop and more pointed spinner. The Arrow IV has a T-tail. *Country of origin:* USA. *Silhouette and picture:* Arrow II.

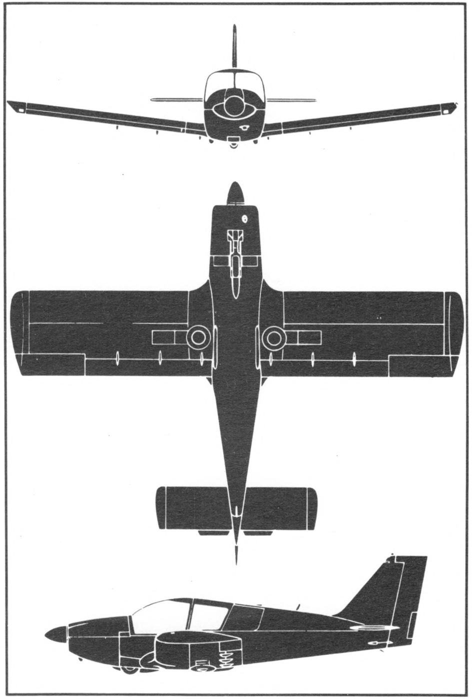
Confusion: Arrow

Robin HR 100

Power: 1 × Lycoming piston engine *Span:* 9.08m *Length:* 7.59m



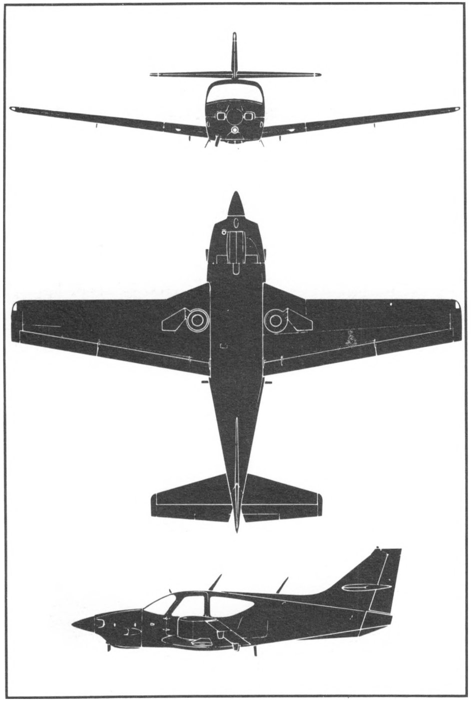
There are three basic models in the HR 100 series of French light aircraft. The fixed-undercarriage four-seat HR 100/210 Safari II is a development of the original all-metal production HR 100/200, of which 31 were built. It first flew in 1971 and remained in production until 1976, some 78 having been built. The retractable-undercarriage four/five-seat HR 100/285 Tiara first flew in 1972 and featured a new vertical tail and wing structure. Powerplant was a 285hp Lycoming driving a three-blade constant-speed propeller. The HR 100/250TR is similar to the Tiara but has a lower-powered engine. Third of the basic models is the six-seat HR 100/4+2, which first flew in May 1975. It is 0.3m longer than the Tiara and features an additional set of cabin windows. Powerplant is a 320hp Lycoming driving a three-blade propeller. Maximum cruising speed is 270km/h. *Country of origin:* France. *Silhouette:* HR 100 Tiara. *Picture:* HR 100/280.

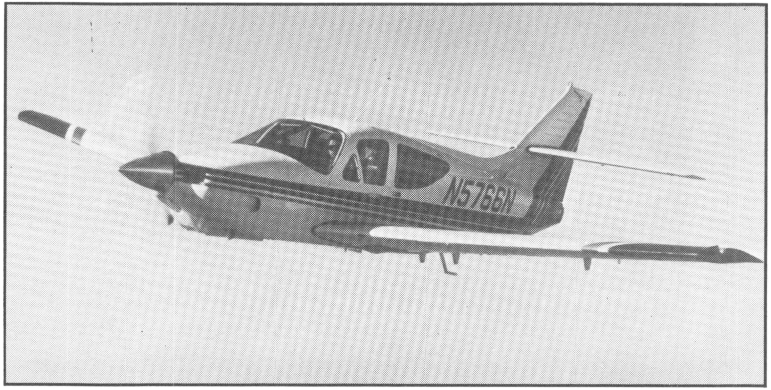


Rockwell Commander 122/114

Confusion: HR 100

Power: 1 × Lycoming piston engine *Span:* 10.85m *Length:* 7.63m



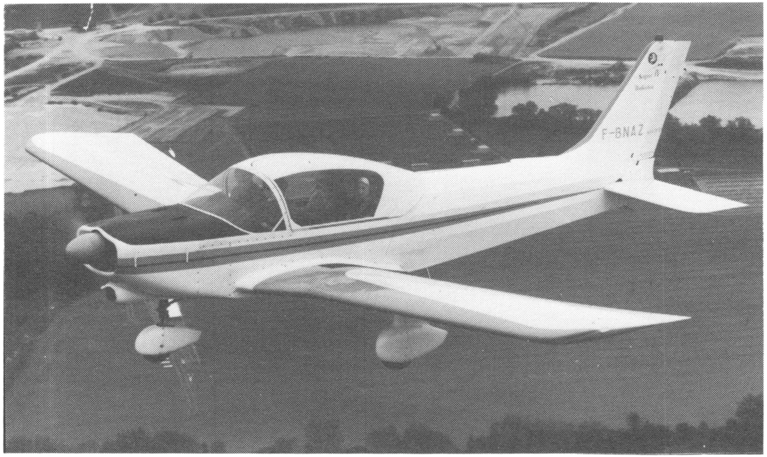


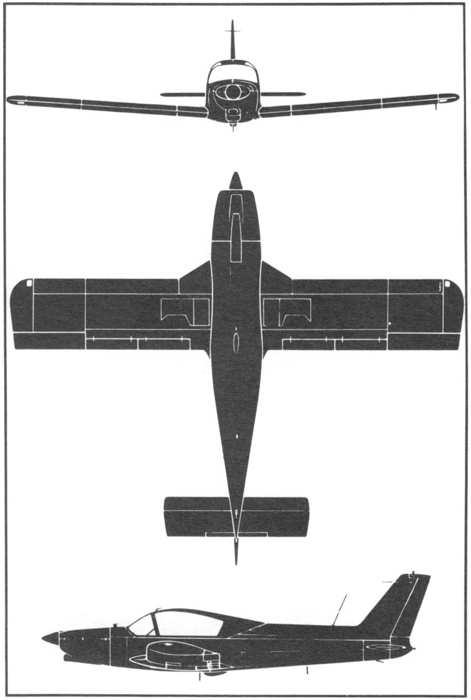
These attractive four-seat light aircraft are all basically similar, the differences lying in equipment and powerplants. The Commander 112 first flew in December 1970, with production aircraft being delivered from 1972. Successive models were improved in exterior and interior detail but retained the same exterior shape. The Commander 114 was introduced in 1976 and differs from the Model 112 principally in having a 260hp engine rather than the 112's 210hp unit. All aircraft have the characteristic mid-set tailplane and sharply tapered rear cabin windows. Cruising speed is 281km/h. Other performance figures include a maximum rate of climb at sea level of 305m/min and a range with maximum fuel, no reserves, of 1,818km. *Country of origin:* USA. *Silhouette:* Commander 112. *Picture:* Commander 114.

Confusion: SF.260

Wassmer WA-40/Super IV/CE.43 Guepard

Power: 1 × Lycoming piston engine *Span:* 10m *Length:* 8.09m



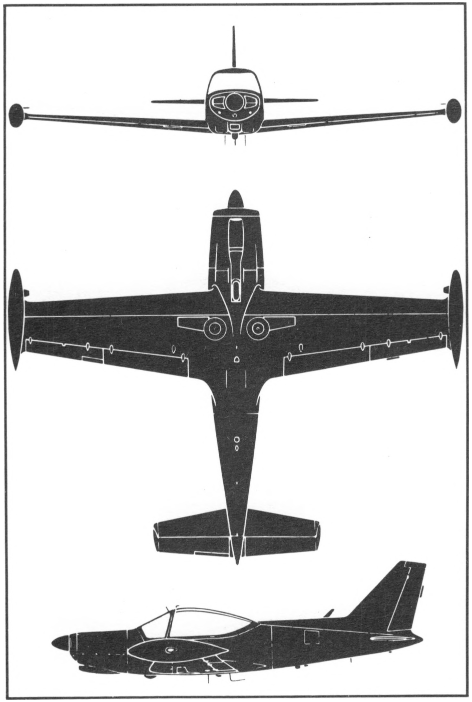


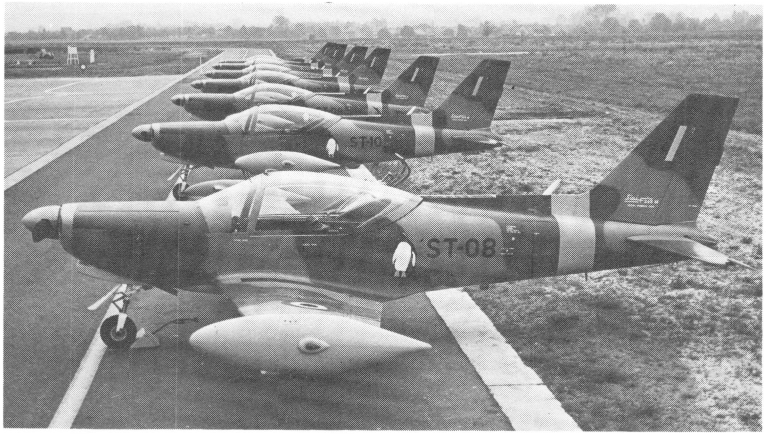
Several versions of the Wassmer WA-40 four/five-seat cabin light aircraft have been built since it first flew in 1959. Later aircraft introduced a swept fin and rudder (WA-40A) and improved engine cowling. The Super IV/21 is externally similar to the Super IV but is powered by a 250hp Lycoming driving a constant-speed propeller. The Cerva CE.43 Guepard is an all-metal derivative of the Super IV/21 and first flew in 1971. Production ended in 1976 after 43 had been built. Wassmer went into liquidation in 1977 and responsibility for Wassmer and Cerva products passed to Issoire-Aviation. *Country of origin:* France. *Silhouette:* WA-40A. *Picture:* Super IV.

SIAI-Marchetti SF.260

Confusion: Guepard, Redigo

Power: 1 × Lycoming piston engine *Span:* 8.35m *Length:* 7.1m



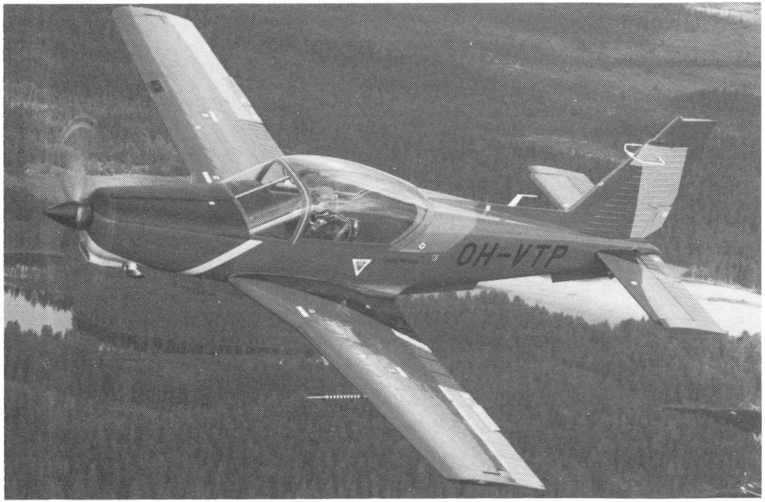


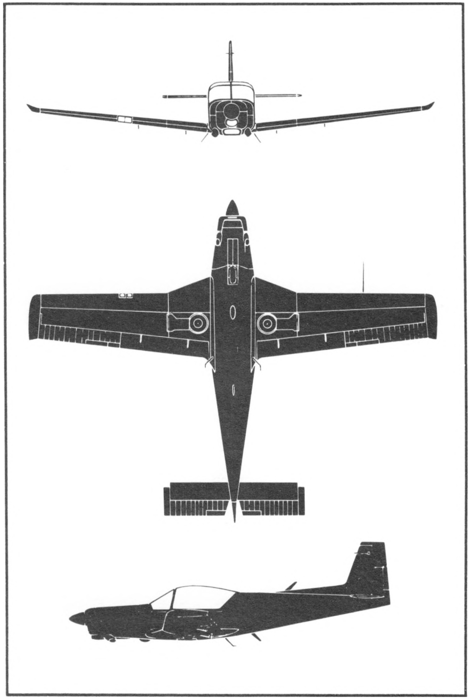
Over 800 civil and military versions of the SF.260 have been built since it entered production in 1964. Derived from the Aviamilano F.250, it is of conventional construction and is fully aerobatic. Military versions are the SF.260M two/three-seat trainer, first flown in 1970 and the SF.260W Warrior weapons trainer/tactical support aircraft, first flown in 1972. These versions are fitted with two or four underwing stores pylons. Both types are widely deployed throughout the world. Civil versions are the SF.260A, B and C. The SF.260A was marketed in the US as the Waco Meteor. The SF.260TP is a turboprop development of the 260M/W now in production. *Country of origin:* Italy. *Silhouette:* SF.260. *Picture:* SF.260M.

Confusion: SF-260

Valmet L-90TP Redigo

Power: 1 × Allison 250-B17 turboprop *Span:* 10.34m *Length:* 7.9m



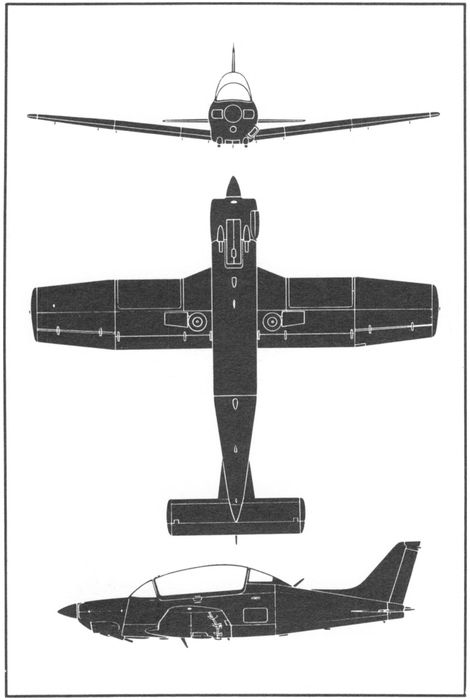


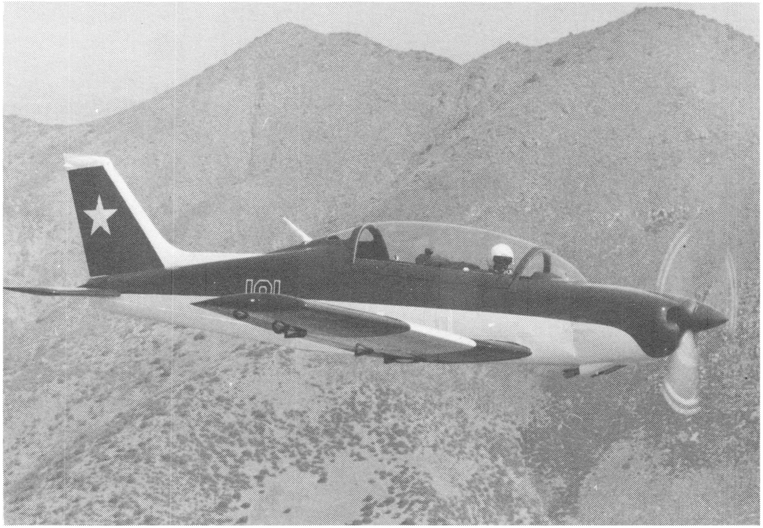
A primary/basic trainer, the L-90TP Redigo first flew in July 1986. It is developed from the earlier Valmet L-70 and differs in being larger, having different wings, retractable undercarriage and a turboprop engine. The Finnish Government is purchasing 10 Redigos but these will be used as liaison aircraft rather than as trainers. The Redigo can be fitted with bombs, rockets or gun pods. Maximum level speed is 335km/h and endurance more than five hours. *Country of origin:* Finland.

ENAER T-35 Pillán

Confusion: Redigo

Power: 1 × I0-540 piston engine *Span:* 8.84m *Length:* 8m



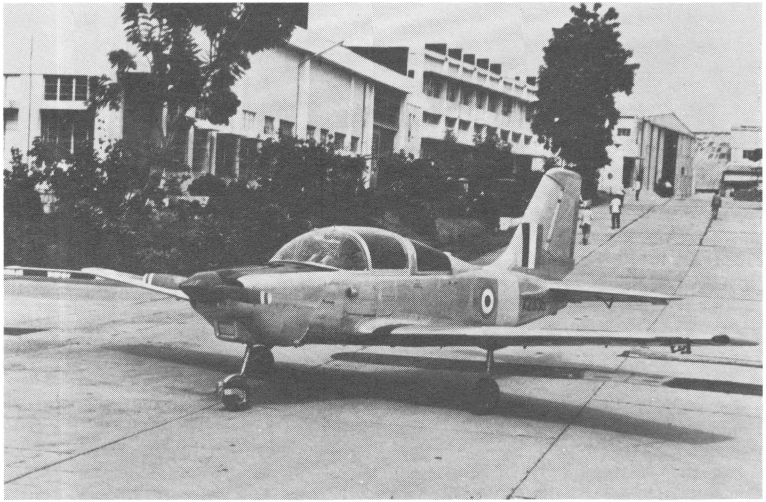


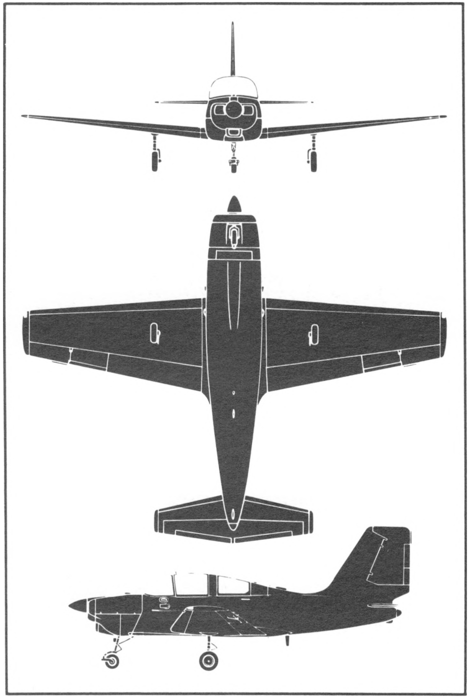
Standard primary trainer of the Chilean and Spanish Air Forces, the ANAER T-35 Pillán is a two-seat low-wing monoplane first flown in March 1981. Fully aerobatic, the Pillán has a cruising speed of 266km/h and a range of 1,204km. Basic Chilean Air Force Pillán is designated T-35A, instrument trainer variant T-35B and with Spanish Air Force T-35S, while an Allison turboprop-powered version of the two-seater is called T-35T Turbo Pillán. *Country of origin:* Chile.

Confusion: SF.360

HAL HPT-32 Deepak

Power: 1 × Lycoming piston engine *Span:* 9.5m *Length:* 7.7m



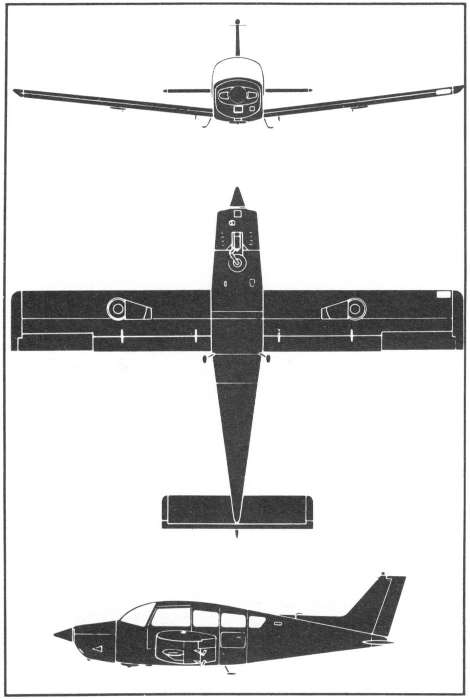


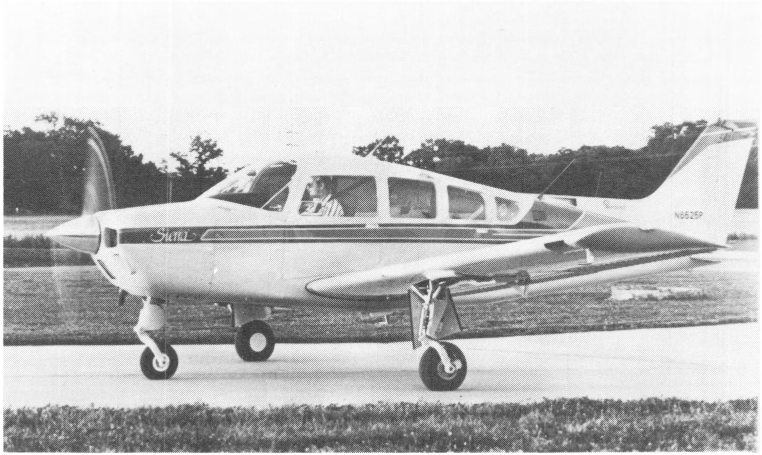
With side-by-side forward seats and an additional seat behind, the HPT-32 is the standard basic trainer for the Indian Air Force first flown in January 1977. Some 110 aircraft have been ordered to date plus eight for the Indian Navy. Four underwing store points are provided for weapon training and the type can also be used for observation, liaison and sports flying. Maximum speed is 217km/h and endurance 4h. *Country of origin:* India.

Beechcraft Sierra 200

Confusion: SkyRocket II

Power: 1 × Lycoming piston engine *Span:* 9.98m *Length:* 7.85m



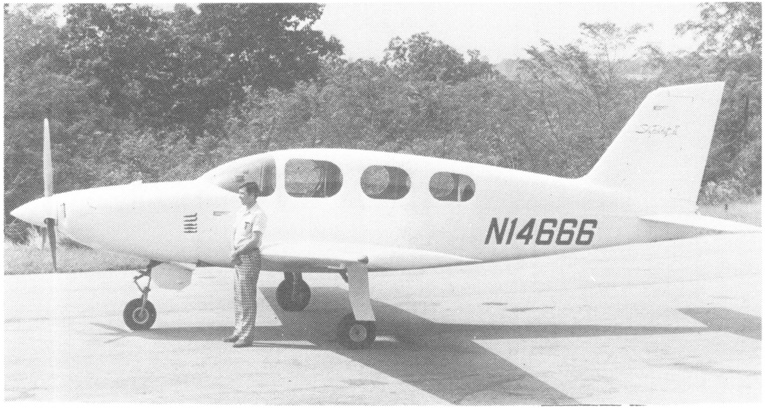


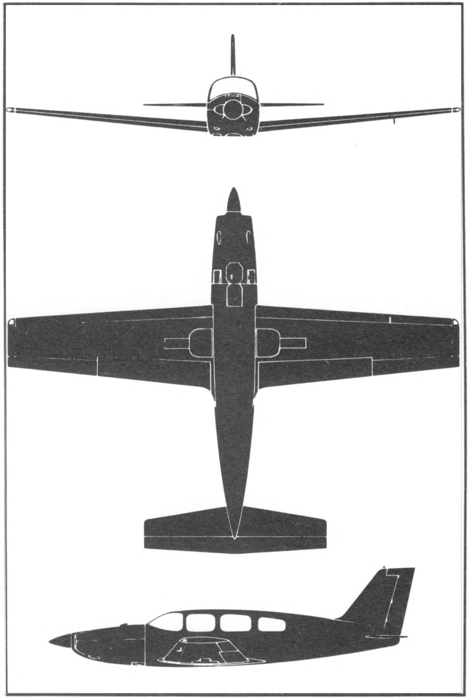
Originally known as the Musketeer Super R, this type was first introduced in 1969. In 1971 the manufacturer renamed the entire Musketeer range and the Super R became the Sierra 200. Since then several detail improvements have been made, including the fitting of a more powerful engine and general aerodynamic cleaning-up. With accommodation for four to six persons, the Sierra can be identified by its four cabin windows on each side (against three in the similar but fixed-undercarriage Sundowner 180). Powered by a 200hp Lycoming flat-four, the Sierra has a cruising speed of about 257km/h. *Country of origin:* USA.

Confusion: Sierra 200

Bellanca Model 25 SkyRocket II

Power: 1 × Continental piston engine *Span:* 10.67m *Length:* 8.81m



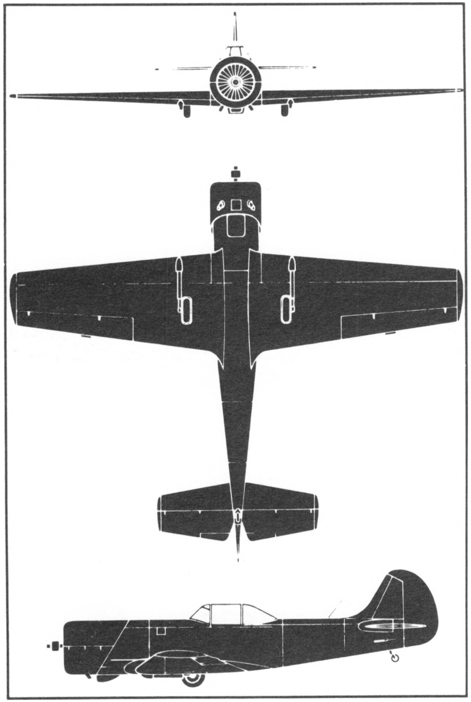


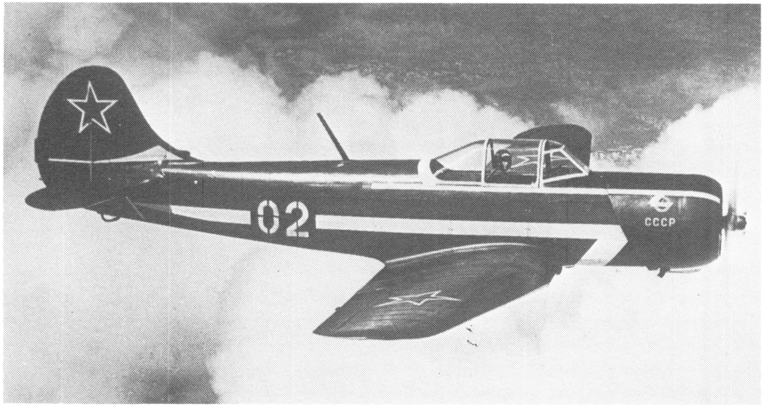
Design of this sleek six-seat executive aircraft began as long ago as 1956 by the late G. M. Bellanca. The choice of innovative materials for the type's construction lengthened development time, but it is claimed that the glass-fibre epoxy laminate used has a higher strength/weight ratio than aluminium and is also aerodynamically extremely smooth. The prototype first flew in March 1975 and by 1978 orders for some 70 aircraft had been recorded. Cruising speed is 410km/h. Other performance figures include a maximum cruising speed (83 per cent power) of 532km/h and a range at 4,570m and 75 per cent power of over 1,955km. The Bellanca Aircraft Corp. assets were acquired, in 1982 by Viking Aviation. *Country of origin:* USA.

Yakovlev Yak-18 Max/Yak-18P ‘Moose’

Confusion: Texan

Power: 1 × Ivchenko or 1 × Vedeneev piston engine *Span:* 10.6m *Length:* 8.35m



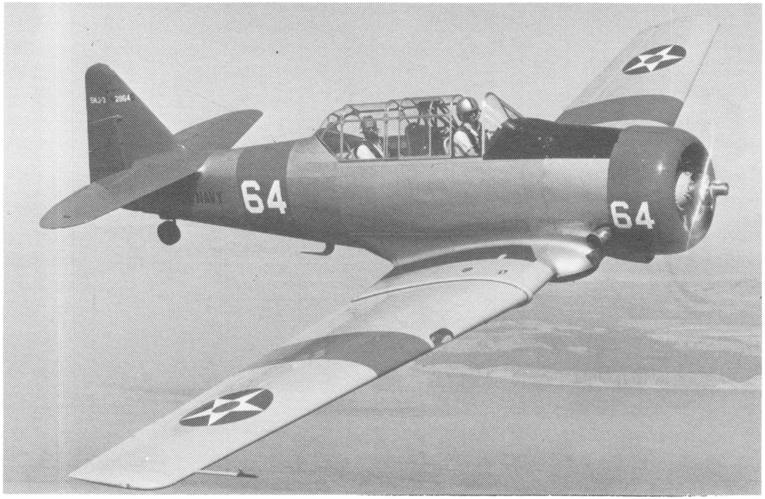


Several versions of this Russian two-seat basic trainer have been built since it first appeared in 1946. The original aircraft was a tailwheel-undercarriage type with a five-cylinder radial engine closely cowled with individual cylinder helmets. Introduced in 1957, the Yak-18A was a cleaned-up version of the Yak-18U with a tricycle undercarriage and a more powerful nine-cylinder radial engine. Widely used as a club aircraft, the Yak-18A has been exported in large numbers. A further development is the single-seat Yak-18P ‘Moose’. A four-seat tourer development is the Yak-50, used extensively for Aeroflot training. Developments are the Yak-50 and the Yak-52 and -53 with tricycle undercarriage. *Country of origin:* Russia. *Silhouette and picture:* Yak-18P.

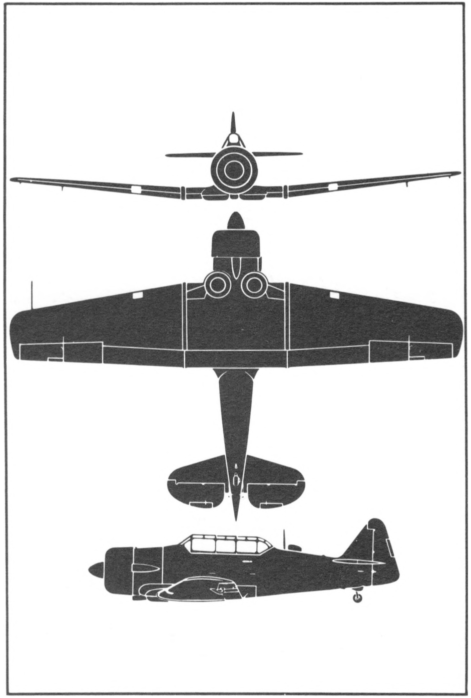
Confusion: Yak-18

North American T-6 Texan

Power: 1 × R-1340 piston engine *Span:* 12.8m *Length:* 8.99m

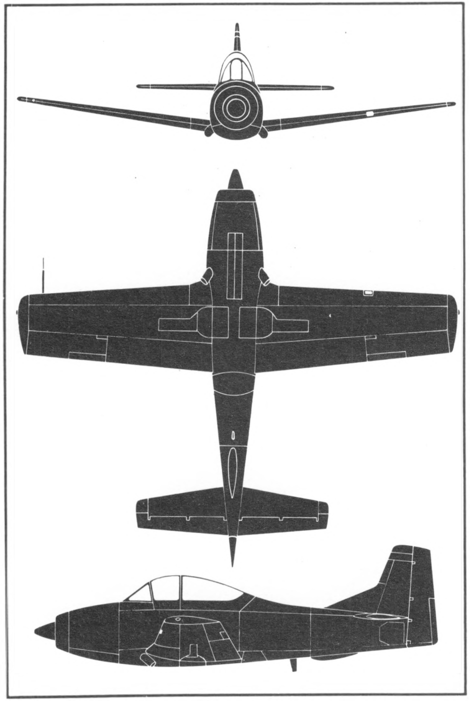


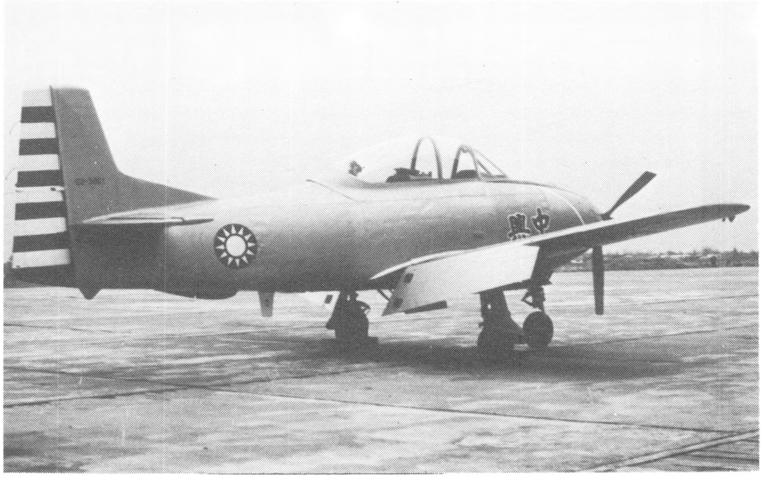
The extremely long-lived T-6 Texan was first produced before the Second World War and was widely used as an advanced trainer in that conflict, more than 10,000 being built in North America. The type was known as the Harvard in RAF service. The Texans to be seen today are virtually the same as the wartime aircraft. The type is still in wide use in South Africa, South America and elsewhere as an air force trainer and racing aircraft. *Country of origin:* USA. *Silhouette:* T-6G. *Picture:* SNJ-3 (naval version).



AIDC T-CH-1 *Confusion:* Trojan

Power: 1 × T53 turboprop *Span:* 12.19m *Length:* 10.26m



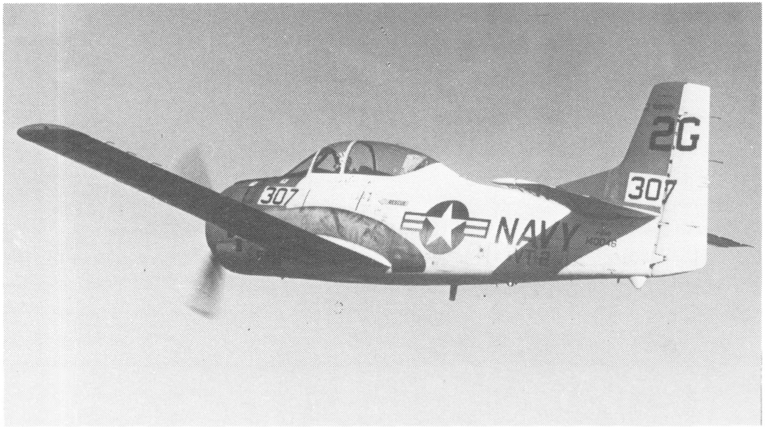


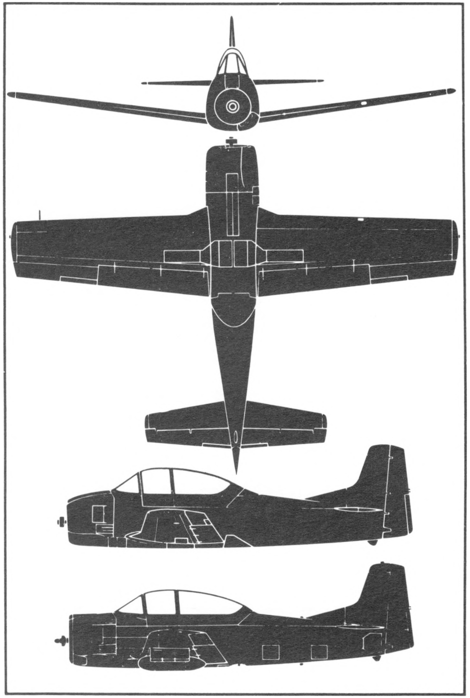
This tandem two-seat trainer was designed to fill a Nationalist Chinese Air Force requirement for an advanced trainer/ground attack aircraft. It first flew in November 1973 and entered series production in May 1976, 50 having been built before production ceased in late 1981. Powered by a licence-built 1,450hp Lycoming turboprop, the T-CH-1 cruises at more than 402km/h. Externally, the design owes much to the North American T-28A, particularly in the arrangement of the cockpit and tail assembly. Cruising speed is 315km/h. *Country of origin:* Taiwan.

Confusion: T-CH-1

North American T-28 Trojan

Power: 1 × R-1820 piston engine *Span:* 12.38m *Length:* 10m



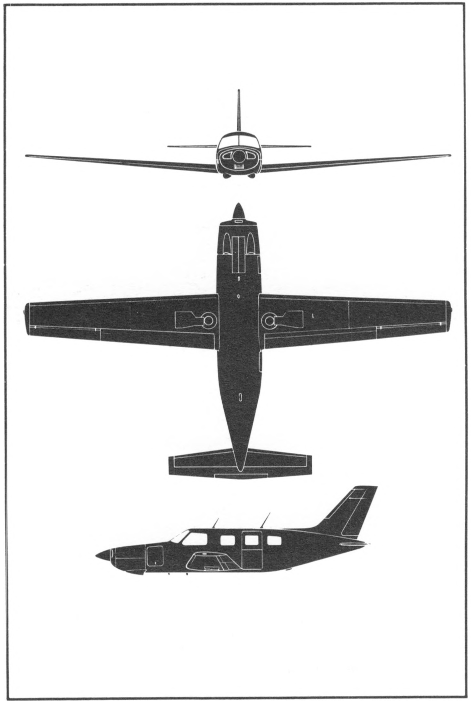


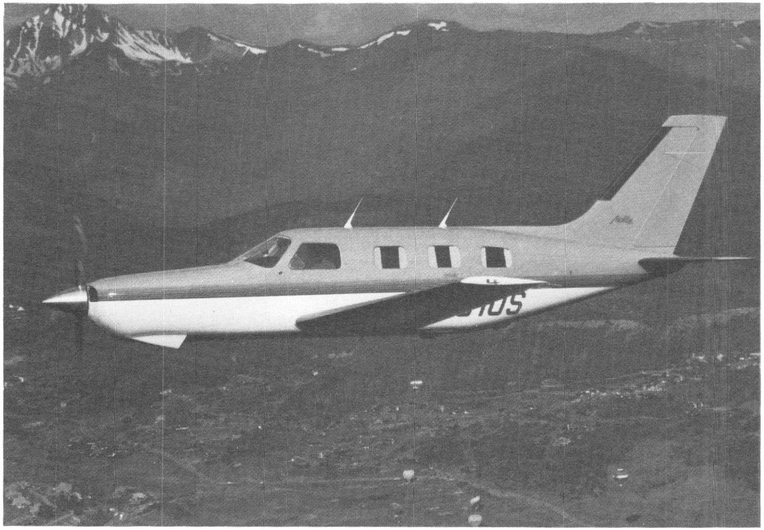
Originally designed as a replacement for the T-6 Texan, this tandem two-seat trainer first flew in September 1949. First operated by the US Air Force and US Navy, the type has since been used by a number of air forces throughout the world. The T-28A, T-28B and T-28C were all trainers, but the T-28D, slightly larger and fitted with a more powerful engine, has been widely used in the counter-insurgency role. A total of six underwing stations can accommodate a variety of armament. About 50 T-28s of all versions can still be seen in South America and South-east Asia, as well as in the US. *Country of origin:* USA. *Main silhouette:* T-28C; *lower side view:* T-28D. *Picture:* T-28D.

Piper PA-46-310P Malibu

Confusion: Saratoga SP, Lance

Power: 1 × Continental or Lycoming piston engine *Span:* 13.11m *Length:* 8.66m



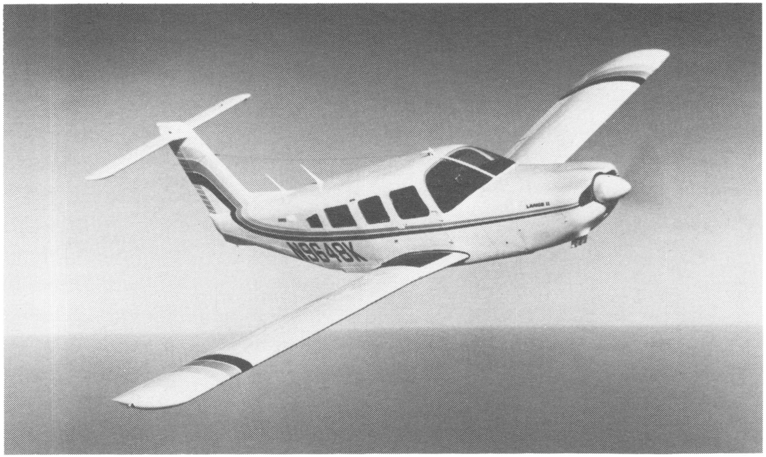


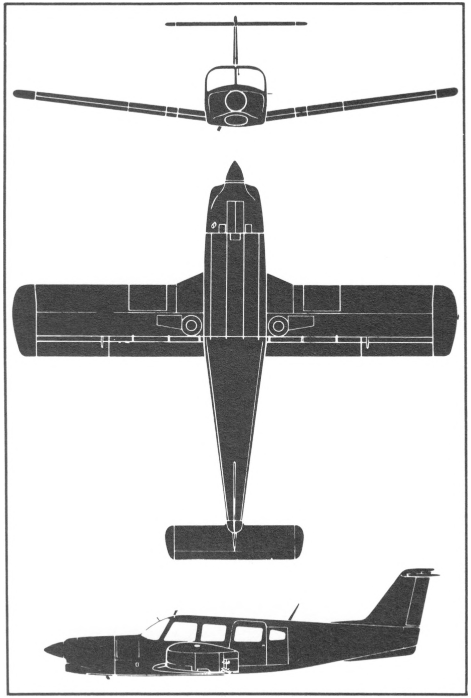
Claimed to be the world's first pressurised cabin aircraft powered by a single piston engine, the Malibu is a large six-seater able to cruise at heights up to 7,620m. First deliveries were made in November 1983 and several hundred have been produced. Powered by a 310hp turbocharged Continental engine, the Malibu cruises at up to 398km/h. Latest version is powered by a Lycoming engine and is called the Malibu Mirage. *Country of origin:* USA.

Confusion: (Lance): Cherokee

Piper Lance I/Lance II/Turbo Lance II

Power: 1 × Lycoming piston engine *Span:* 10m *Length:* 8.44m



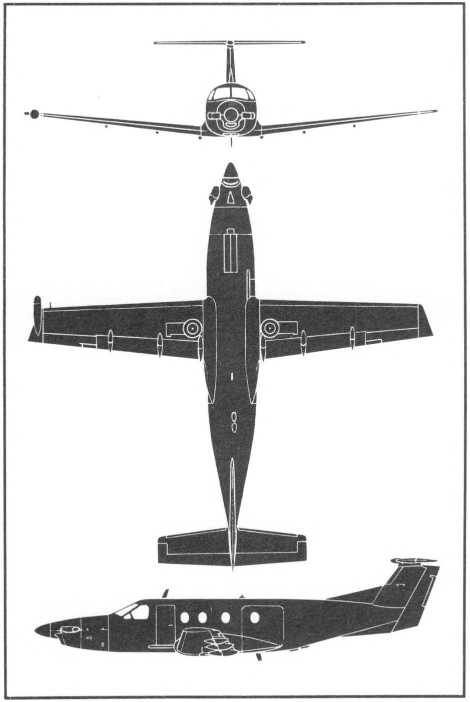


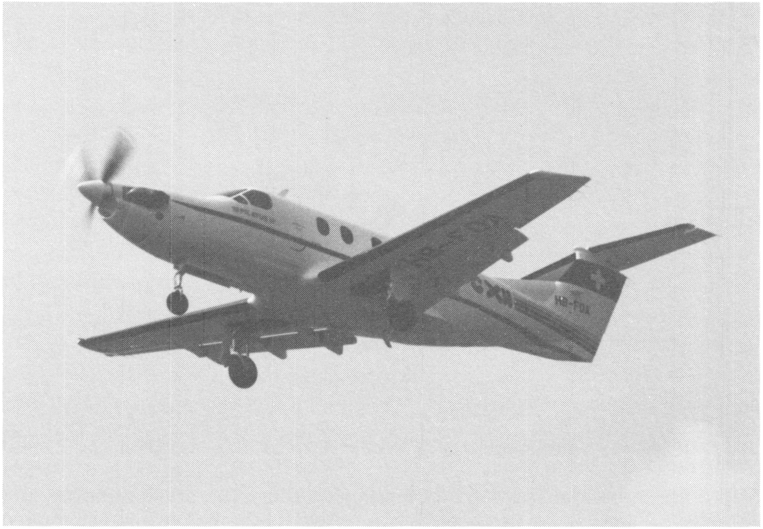
There are three main versions of the Piper Lance. The original model, first flown in August 1974, was essentially a retractable-undercarriage Cherokee Six and featured a conventional tail unit. The Lance II and Turbo Lance II both have the now fashionable T-tail arrangement, while the Turbo Lance also has the extra power of a 300hp turbocharged Lycoming engine. The T-tail is claimed to reduce drag and to increase performance. Main distinguishing point of the Turbo Lance is the large air inlet for the turbocharger located beneath the propeller spinner. *Country of origin:* USA. *Silhouette:* Turbo Lance II. *Picture:* Lance II.

Pilatus PC-12

Confusion: Lance II, Arrow IV

Power: 1 × PT6A turboprop *Span:* 13.78m *Length:* 13.96m



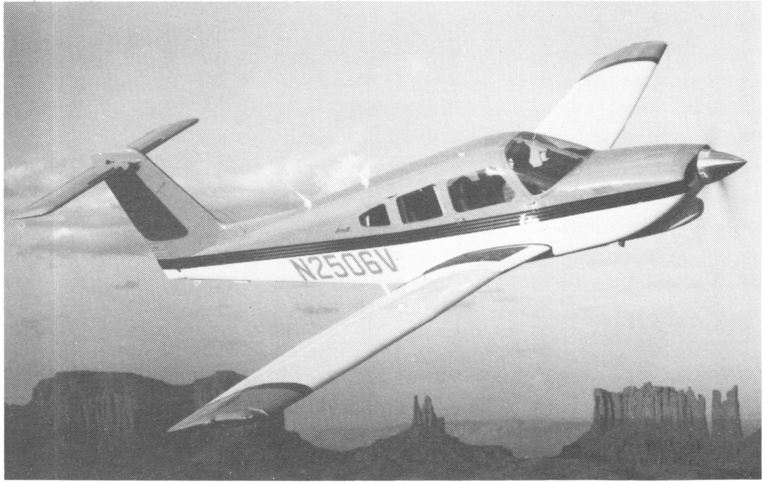


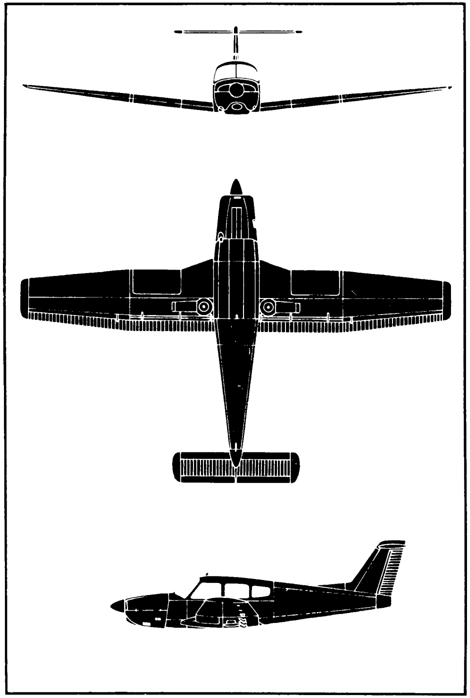
An unusual design, the PC-12 is a low-wing utility aircraft with a single turboprop engine and a high-set tailplane. The aircraft is pressurised and is offered in two versions, PC-12F for freight and PC-12P for passengers. The -12F can carry loads up to 1,400kg, while the -12P can seat up to nine passengers or six in a business layout. Maximum cruising speed is 497km/h and maximum range 2,965km. *Country of origin:* Switzerland.

Confusion: Lance

Piper Arrow IV/Turbo Arrow IV

Power: 1 × Lycoming piston engine *Span:* 10.8m *Length:* 8.23m



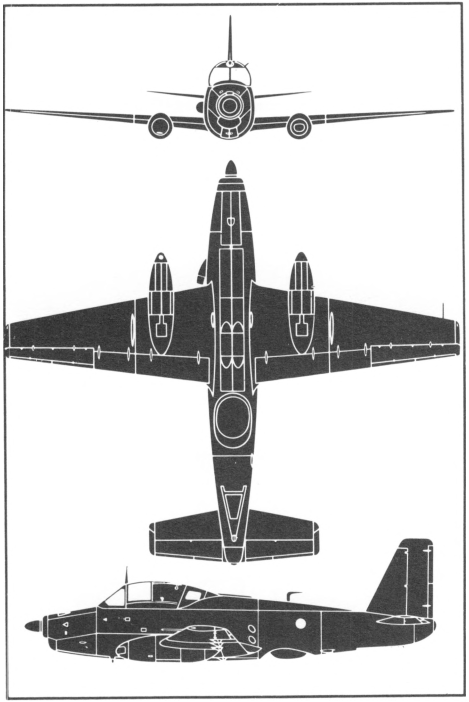


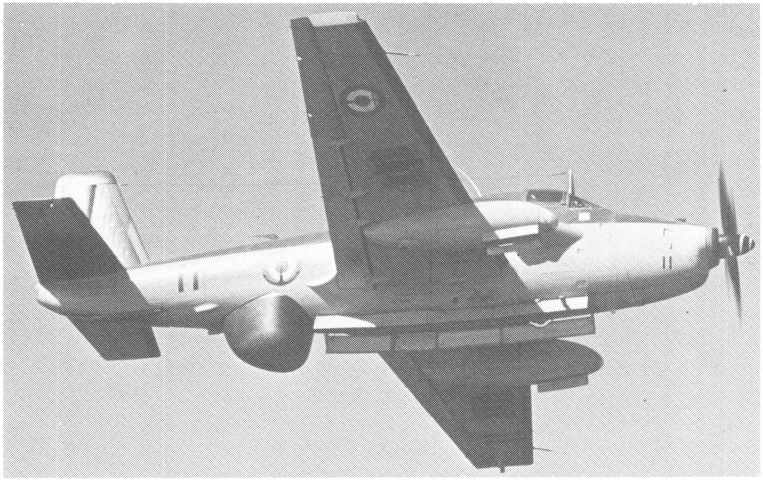
Developed from the fixed-undercarriage Archer II, the Arrow IV is a four-seat monoplane with a T-tail and retractable tricycle undercarriage. The T-tail was introduced in 1979. Production of the Lycoming engined Arrow IV ceased in 1982 and it was replaced on the line by the Turbo Arrow IV powered by a turbocharged Continental engine. Over 1,000 Turbo Arrow IVs have been built. The Arrow IV has a cruising speed of 311km/h and a range of 1,353km. *Picture:* Turbo Arrow IV. *Country of origin:* USA.

Breguet BR 1050 Alizé

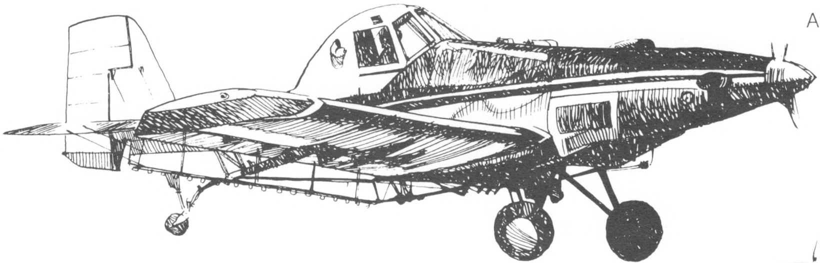
Confusion: —

Power: 1 × Dart turboprop *Span:* 15.6m *Length:* 13.86m

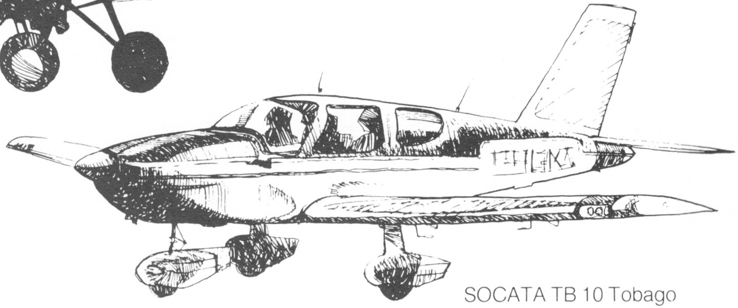




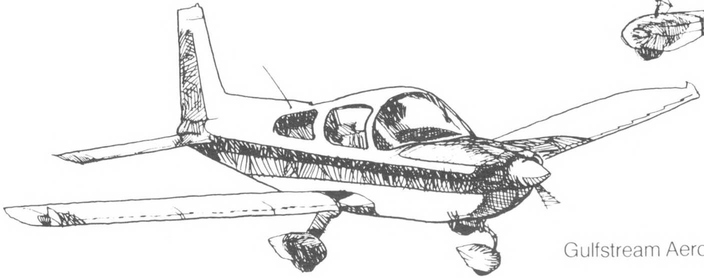
The three-seat Alizé (Tradewind) is a carrier-based anti-submarine aircraft currently in service with the navies of France and India. First flight was in 1956 and two prototypes and three pre-production aircraft preceded 75 production Alizés into *Aéronavale* service from mid-1959. Armament includes a torpedo or depth charges, AS.12 air-to-surface missiles or rockets. The Alizé has a large retractable radome underneath the rear fuselage. Noticeable also are the large landing gear/weapons nacelles on the wing leading-edges. *Country of origin:* France.



Ayres Turbo-Thrush



SOCATA TB 10 Tobago

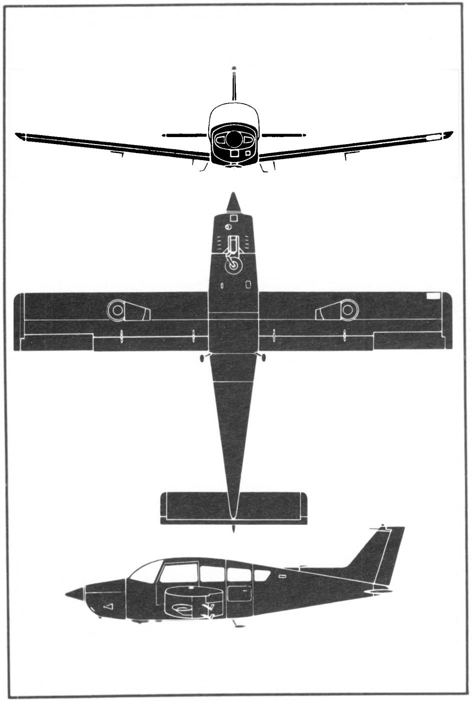


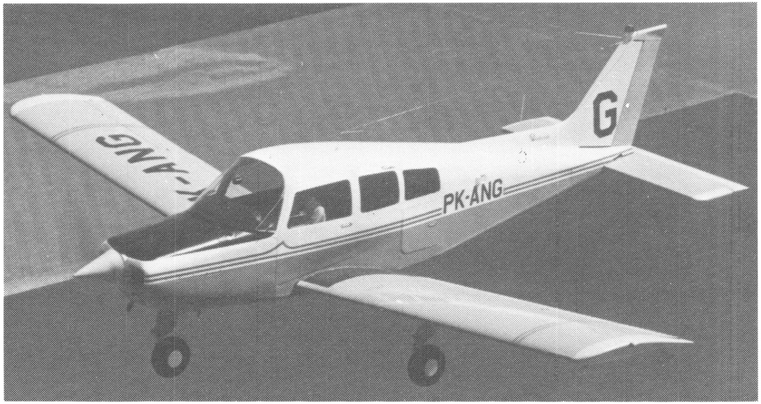
Gulfstream Aerospace T-Cat

Beech Sundowner 180/Sport 150

Confusion: Lynx, Airtrainer CT4

Power: 1 × Lycoming piston engine *Span:* 9.98m *Length:* 7.85m



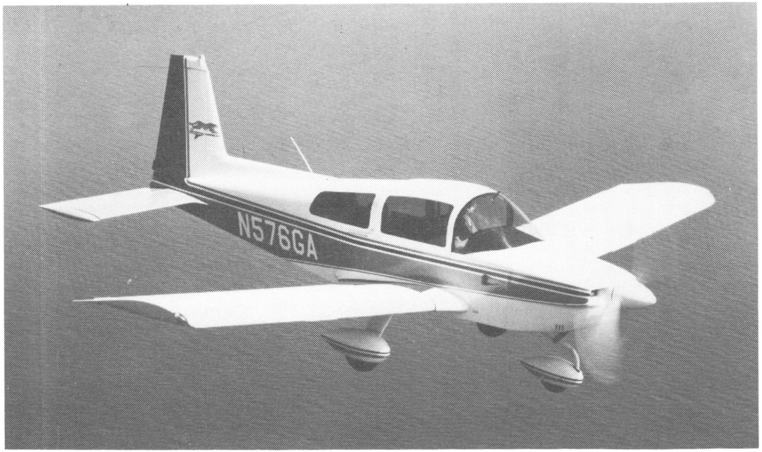


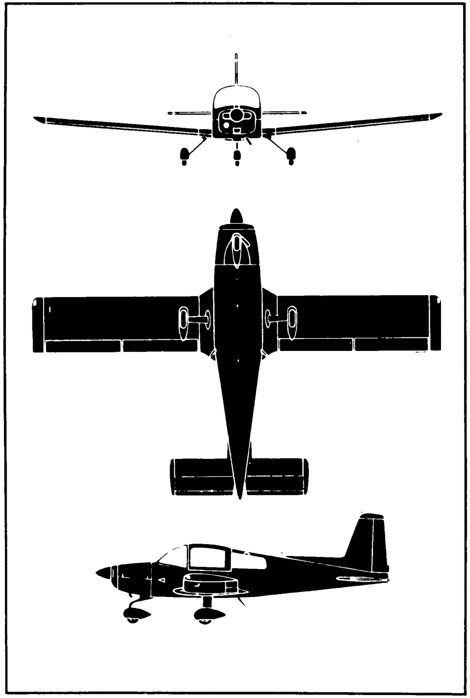
The Beechcraft Musketeer series began with the Model 23 Musketeer, which first flew in 1961. The series has been progressively improved over the years, although the basic exterior appearance has remained largely unchanged. In 1974 Beech renamed the series as follows: the original Musketeer Super R became the rectractable-undercarriage Sierra 200; the Musketeer Custom became the Sundowner 180; and the Musketeer Sport became the Sport 150. These new designations reflected the engine power. Main external difference between the Sundowner 180 and the Sport 150 is the former's extra cabin window on each side. Cruising speeds are about 225km/h for the Sundowner and 200km/h for the Sport. *Country of origin:* USA. *Silhouette:* Sierra 200. *Picture:* Sundowner 180.

Confusion: Lynx, Sundowner

Gulfstream Aerospace AA-5A/AA-5B

Power: 1 × Lycoming piston engine *Span:* 9.6m *Length:* 6.71m



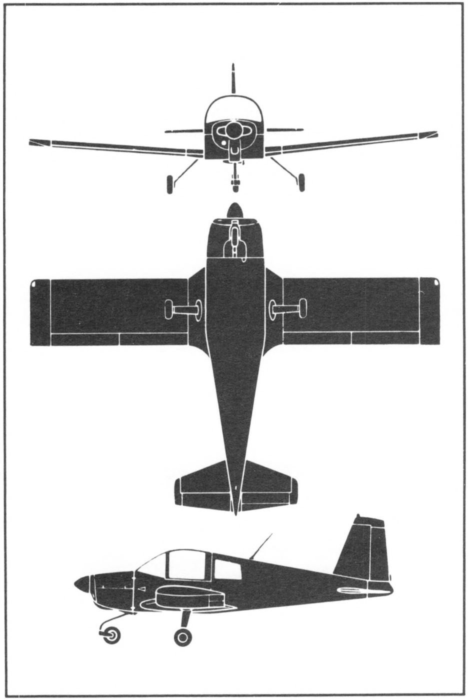


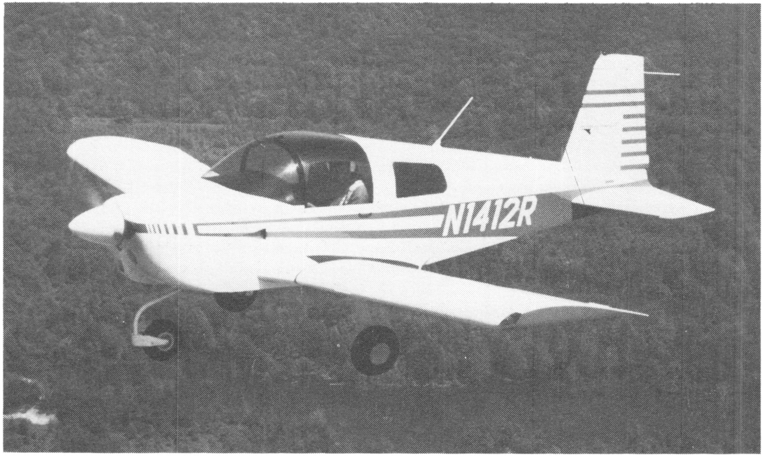
A larger development of the AA-1 series, the AA-5 first flew in 1970. This all-metal four-seat aircraft was built in four versions; the basic AA-5A with 150hp Lycoming engine; the de luxe Cheetah, externally identical to the AA-5A but with additional internal equipment; the AA-5B with 180hp Lycoming; and the de luxe Tiger, which has the same internal equipment as the Cheetah. The AA-5B series first flew in 1974. The Cheetah was known as the Traveler until 1976. Cruising speeds are 235km/h for the AA-5A and 260km/h for the AA-5B. *Country of origin:* USA. *Silhouette:* AA-5A. *Picture:* Cheetah.

Gulfstream Aerospace AA-1/T-Cat/Lynx

Confusion: AA-5

Power: 1 × Lycoming piston engine *Span:* 7.46m *Length:* 5.86m



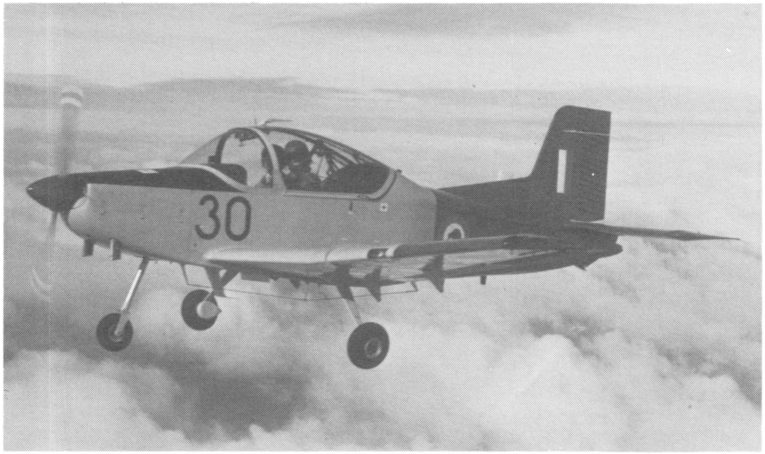


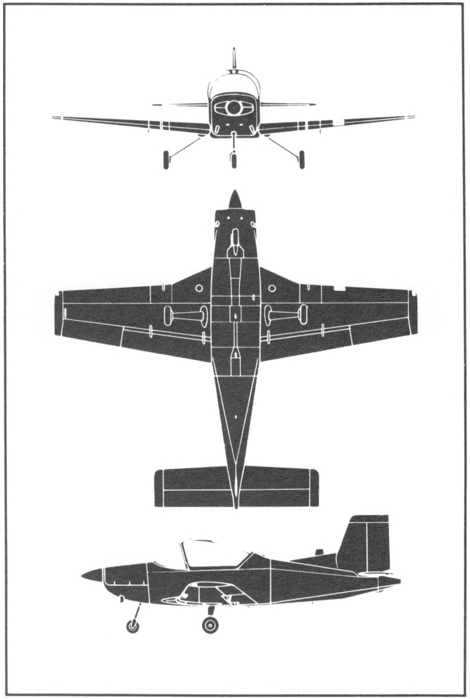
Designed originally as a trainer version of the American Aviation AA-1 Yankee, the AA-1A first flew in 1970. It was re-designated AA-1B Trainer in 1973. The AA-1C was introduced in 1977 and incorporated a number of minor design changes as well as a more powerful 115hp Lycoming engine. The T-Cat is externally identical to the AA-1C but includes a number of internal equipment changes. The Lynx is designed to be both a trainer and sports aircraft and is equipped with a de luxe interior and exterior finish and wheel fairings. Cruising speed of the T-Cat and Lynx is about 210km/h. *Country of origin:* USA. *Silhouette and picture:* AA-1 Trainer.

Confusion: Sundowner

Pacific Aerospace Corporation Airtrainer CT4

Power: 1 × Continental piston engine *Span:* 7.92m *Length:* 7.06m



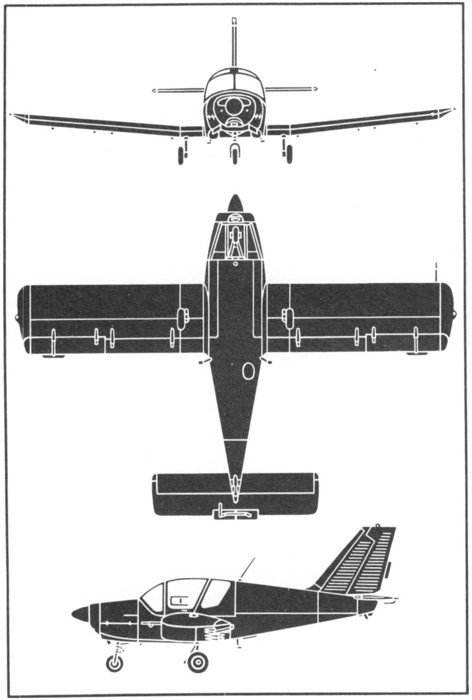


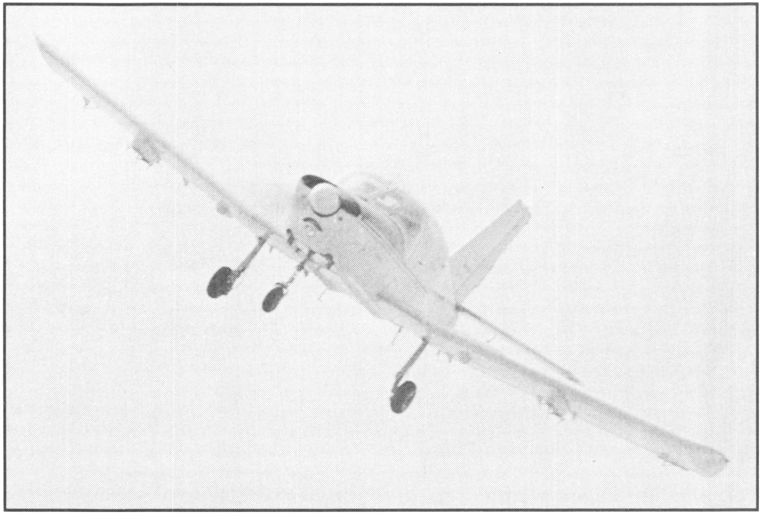
The original Victa Airtourer was a two-seat all-metal fully aerobatic light aircraft which first flew in 1959. Production aircraft were powered by a 100hp Continental engine. A four-seat development, the Aircruiser, was flown in 1967 but not produced in quantity. Aerospace of New Zealand (now PAC) acquired the Australian Airtourer and Aircruiser designs in 1971 and re-engineered the latter into a two/three-seat military trainer. Called the Airtrainer CT4, it is powered by a 210hp Continental and cruises at about 260km/h. Later developments are CT4B, CT4C (turboprop) and CT4CR with retractable undercarriage. *Country of origin:* New Zealand.

UTVA-75A

Confusion: Airtrainer

Power: 1 × Textron Lycoming piston engine *Span:* 9.73m *Length:* 7.11m



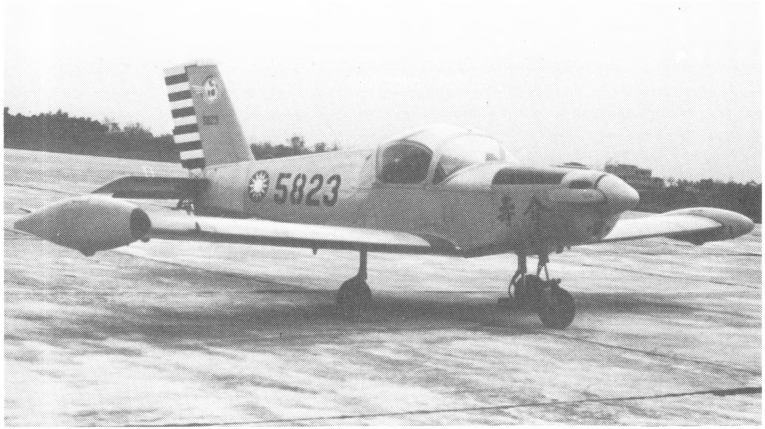


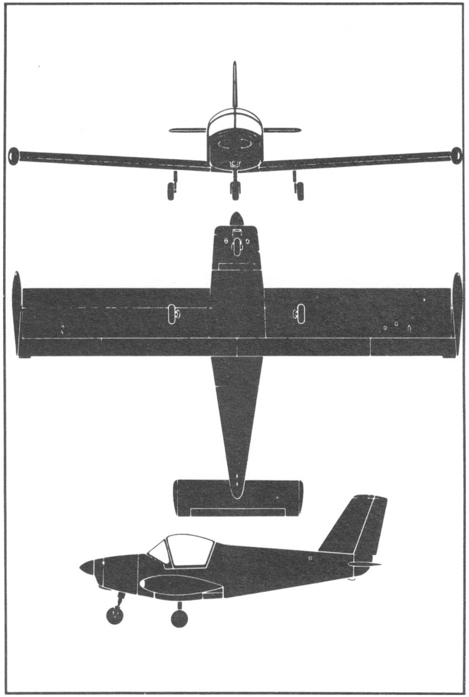
Used by both the Yugoslav Air Force and flying clubs, the UTVA-75A is a two-seat side-by-side trainer and utility aircraft. It first flew in May 1976 and more than 150 have been delivered. Weapons can be carried on underwing racks. The aircraft has a maximum speed of 215km/h and a range of 800km. A four-seat version has flown. *Country of origin:* Yugoslavia.

Confusion: HR 200

AIDC PL-1B Chiensou

Power: 1 × Lycoming piston engine *Span:* 8.53m *Length:* 5.99m



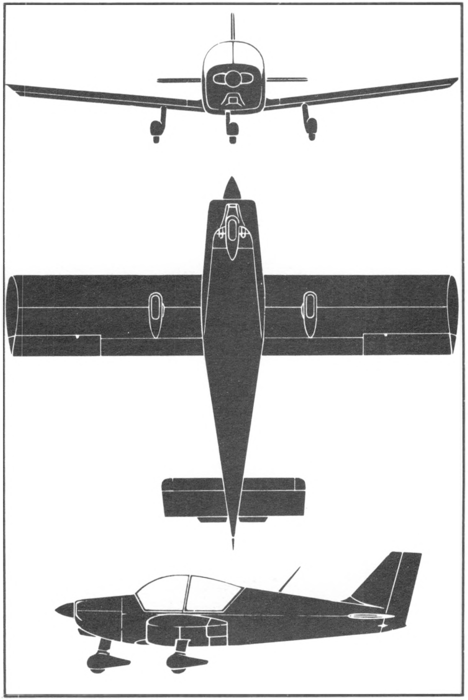


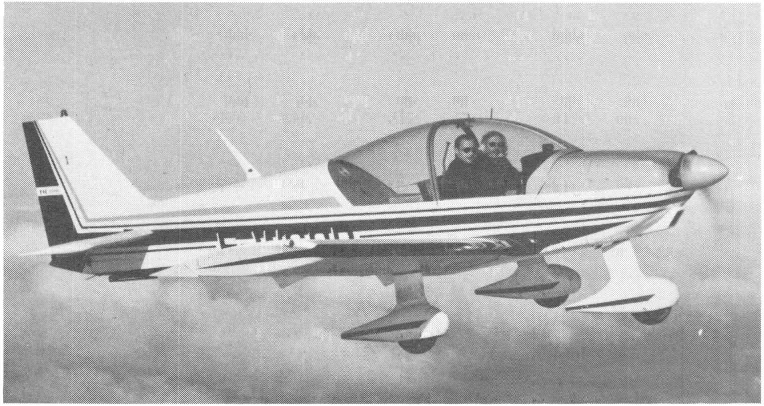
The PL-1B is a Taiwan-built version of the PL-1 Laminar, an amateur-designed two-seat light aircraft. First flown in 1962, this conventional tricycle-undercarriage all-metal light aircraft was adopted for use by the Taiwanese Air Force after an example was built and flown at Taichung in 1968. The production version is designated PL-1B Chiensou; a total of 55 were built. Powered by a 150hp Lycoming piston engine, the PL-1B cruises at about 210km/h. Other variants of the basic Pazmany PL-1 include the PL-2, with wing dihedral increased from 3° to 5°, wider cockpit and extensively changed internal structure to simplify construction, and the Indonesian-built Lipnur LT-200. *Country of origin:* Taiwan/USA.

Robin HR 200

Confusion: DR 400

Power: 1 × Lycoming piston engine *Span:* 8.33m *Length:* 6.64m



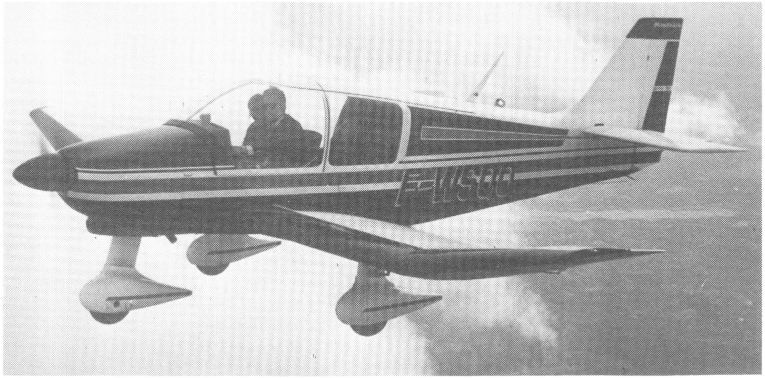


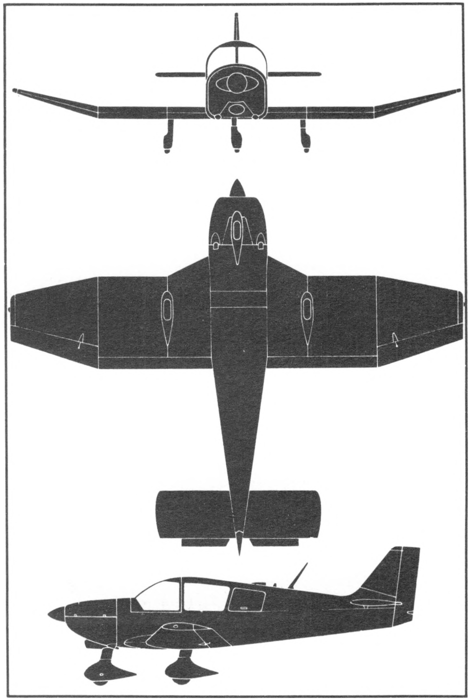
Although the all-metal two-seat HR 200 series bears an external resemblance to the HR 100/210 it is a separate design. Slightly smaller overall, it is intended for schools and clubs. First flight was in 1971 and there are four versions: HR 200/100S, basic version; HR 200/100 Club, similar to the HR 200/100 with 108hp Lycoming engine but with wheel fairings and Hoffmann propeller; HR 200/120B with 118hp Lycoming engine; and HR 200/160 with 160hp Lycoming engine. Main distinguishing feature is the large forward-sliding clear canopy giving almost all-round vision. Cruising speed ranges from about 195km/h for the HR 200/100 to 250km/h for the HR 200/160. *Country of origin:* France. *Silhouette and picture:* HR 200/100 Club.

Confusion: DR 221

Robin DR 400

Power: 1 × Lycoming piston engine *Span:* 8.72m *Length:* 6.96m



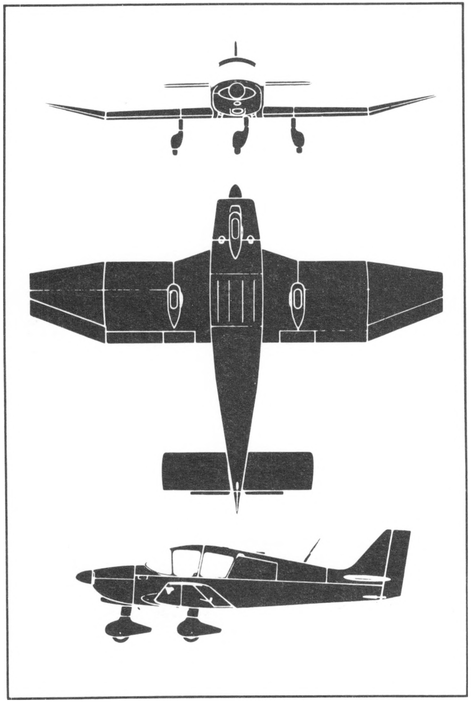


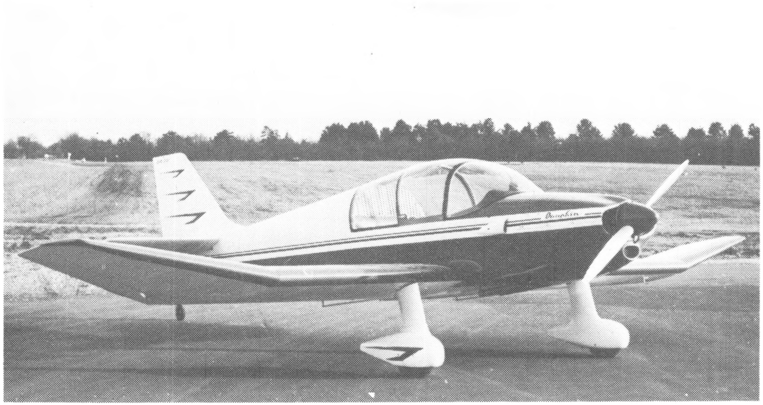
The DR 400/100 2 + 2 is a development of the earlier DR 220 2 + 2 and first flew in 1972. It is powered by a 100hp engine. The DR 400/120 Petit Prince/Dauphin also flew for the first time in 1972 and is powered by a 118hp Lycoming engine. The DR 400/140B Major is powered by a 160hp Lycoming engine and is externally the same as the 2 + 2 and Petit Prince. The DR 400/600 Chevalier replaced the earlier DR 360 Major 160 and is powered by a 160hp Lycoming engine. Most powerful aircraft in the range is the DR 400/180 Regent (together with the DR 400/180R Remorqueur glider tug), which replaced the earlier DR 235 Regent and DR 380 Prince. This four/five-seater is powered by a 180hp Lycoming. The DR 400/100 Cadet is a two-seater. *Country of origin:* France. *Silhouette and picture:* DR 400/180.

Robin DR 221 Dauphin

Confusion: DR 400

Power: 1 × Continental or 1 × Lycoming piston engine *Span:* 8.72m *Length:* 7m



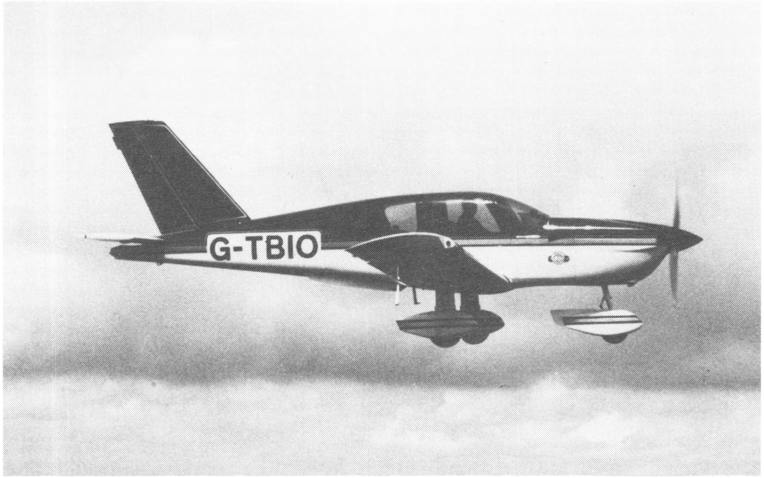


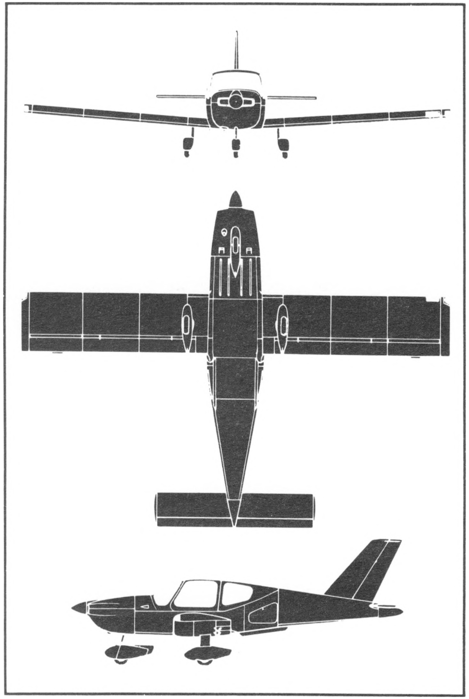
The three/four-seat DR 221 Dauphin, a development of the DR 220 2 + 2 range, first flew in 1967. All of the aircraft in this range have the characteristic cranked wing of Jodel-inspired light aircraft. The basic DR 220 and the strengthened DR 220A are both powered by a 100hp Rolls-Royce Continental, while the DR 220/108 is fitted with a 115hp Lycoming. The Dauphin is powered by a 115hp Lycoming and cruises at 205km/h. Other performance figures include a maximum rate of climb at sea level of 198m/min; service ceiling of 3,900m; and maximum range of 910km. More than 140 DR 220s and DR 221s were built before production switched to later Robin designs. *Country of origin:* France. *Silhouette:* DR 220. *Picture:* DR 221.

Confusion: Rallye, HR 200, Cherokee

Socata TB 9 Tampico/TB 10 Tobago

Power: 1 × Lycoming piston engine *Span:* 9.76m *Length:* 7.63m



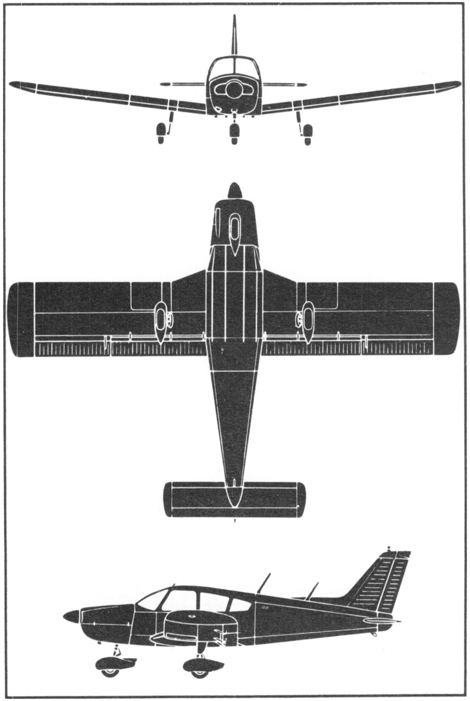


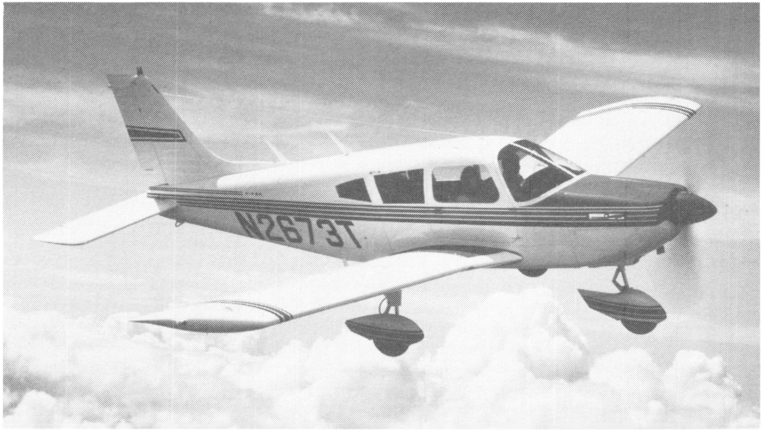
The TB 9 Tampico is a 160hp four-seater, while the TB 10 Tobago is powered by a 180hp Lycoming and is classed as a four/five-seater. An aerobatic version designated TB 11 was built, but is not currently offered. The fin of the TB 9 and TB 10 is comparatively tall and is not fitted with a fillet where it joins the fuselage. A more powerful version with retractable landing gear is the TB 20 Trinidad. With turbocharger it becomes the TB 21 TC. Sales of all versions totals in excess of 500. In production is TB 9 Tampico Club. *Country of origin:* France. *Silhouette and picture:* Tobago.

Piper PA-28/PA-32 Cherokee

Confusion: DR 400, Saratoga

Power: 1 × Lycoming piston engine *Span:* 9.14m *Length:* 7.16m



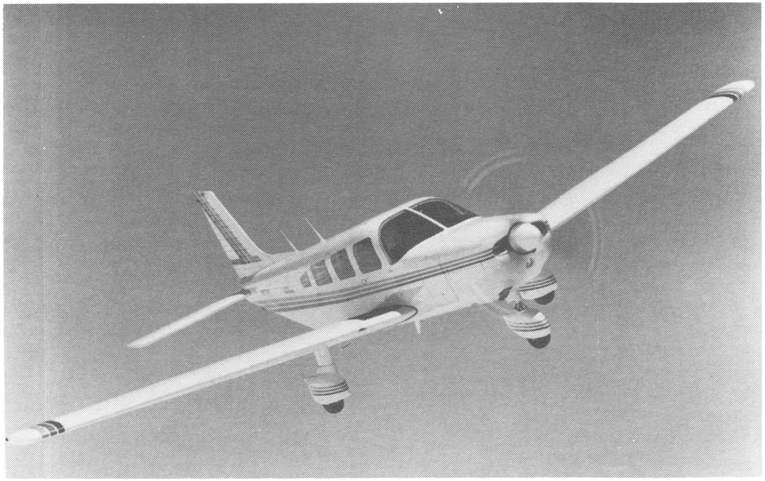


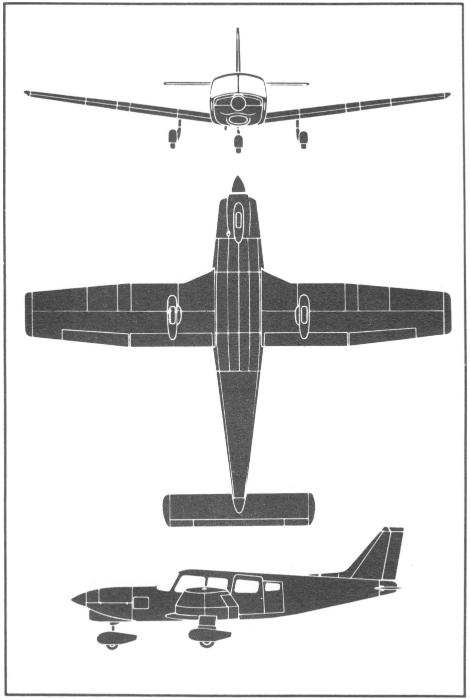
The original PA-28-140 Cherokee 140 two-seater was announced in 1964. The PA-28-180 Cherokee 180 is a four-seater powered by a 180hp Lycoming engine. Slightly longer than the 140, it has three cabin windows each side. The PA-28-235 is slightly larger than the Model 180. The introduction of the PA-28-161 Warrior in 1973 saw the first use of a new increased-span tapered wing. The 1977 versions, designated Warrior II, have the original 150hp engine replaced by a 160hp unit. The PA-28-181 Archer four-seater was introduced in 1972 and the 235hp PA-28-236 Dakota first appeared in 1978. The Cherokee Six (PA-32) has a longer fuselage and four windows per side. *Country of origin:* USA. *Silhouette:* Cherokee 180. *Picture:* Cherokee Charger.

Confusion: Cherokee

Piper PA-32-301 Saratoga

Power: 1 × Lycoming piston engine *Span:* 11.02m *Length:* 8.44m



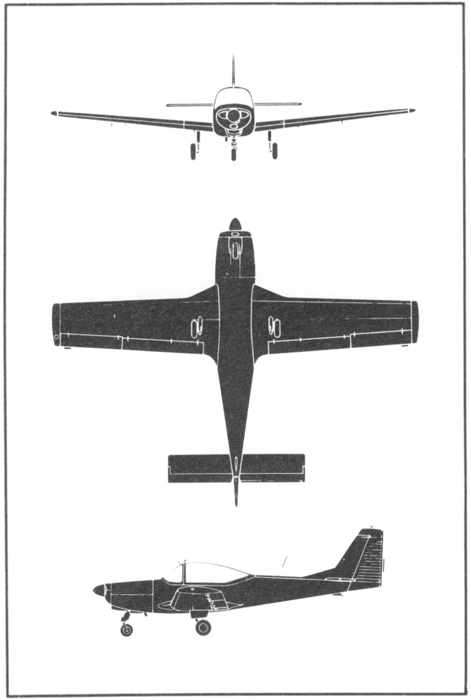


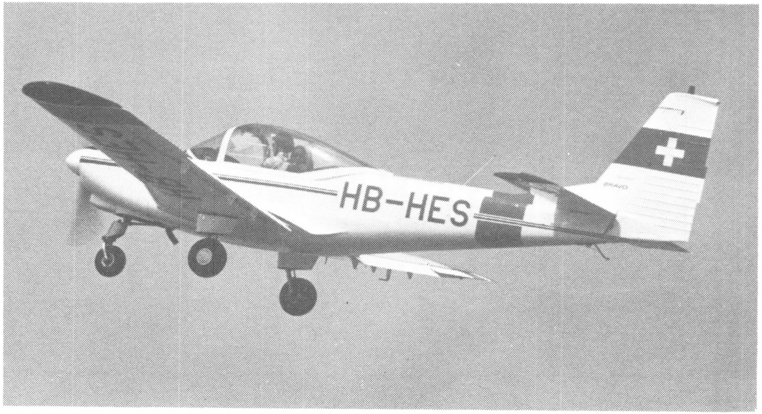
A large six/seven-seater of typical Piper outline, the Saratoga was first introduced in late 1979. It is produced in four versions; a basic model with fixed or retractable landing gear and two corresponding turbo-charged models. Turbo Saratogas can be identified by a prominent air intake below the propeller. Saratogas resemble the Cherokee Six in having four windows per side, but have longer-span wings. Cruising speed of the Saratoga is 267km/h. Two retractable undercarriage variants are the Saratoga SP and Turbo Saratoga SP. Over 815 of these types have been sold. *Country of origin:* USA.

FFA AS 202 Bravo

Confusion: Sportsman

Power: 1 × Lycoming piston engine *Span:* 9.75m *Length:* 7.5m



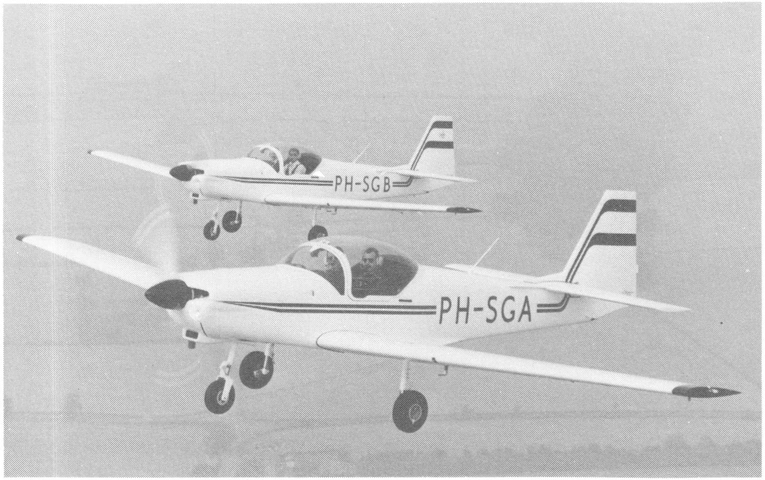


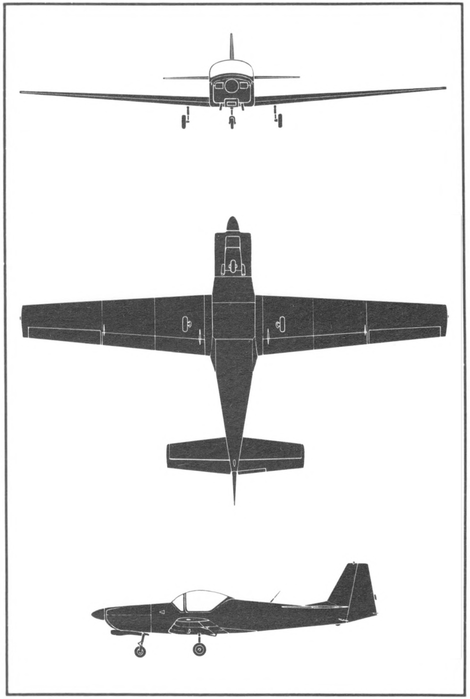
Following an agreement with the Italian company SIAI-Marchetti in 1967, FFA has developed and produced the two/three-seat AS 202 Bravo light trainer and sporting aircraft. First flown in 1969, the Bravo is currently available in two versions: AS 202/15 powered by a 150hp Lycoming engine, of which some 34 were sold and the AS 202/18A powered by a 180hp Lycoming. More than 180 Bravos had been sold by 1990. The British Aerospace Flying College uses the 18A with the name Wren. Cruising speed of the AS 202/18A is 203km/h and maximum range is 890km. *Country of origin:* Switzerland. *Silhouette and picture:* AS 202/15.

Confusion: Fournier RF-613

Slingsby T67M Firefly 160/T67M200 Firefly

Power: 1 × Textron Lycoming piston engine *Span:* 10.59m *Length:* 7.32m





The two-seat military basic trainer version of the T67 series, which was based on the Fournier RF-6B, the T67M Firefly 160 is powered by a Textron Lycoming flat four engine. As the T67M200 it is fitted with a higher-powered engine and has a higher cruising speed. The Firefly 160 first flew in December 1982. Civil versions are the T67B, C and D. The Firefly has been widely exported and the latest contract is for 113 TM260s for the USAF Enhanced Flight Screener programme, replacing Cessna T-41 and T-41C Mescaleros. *Country of origin:* UK. *Silhouette:* T67M260. *Picture:* T67C.

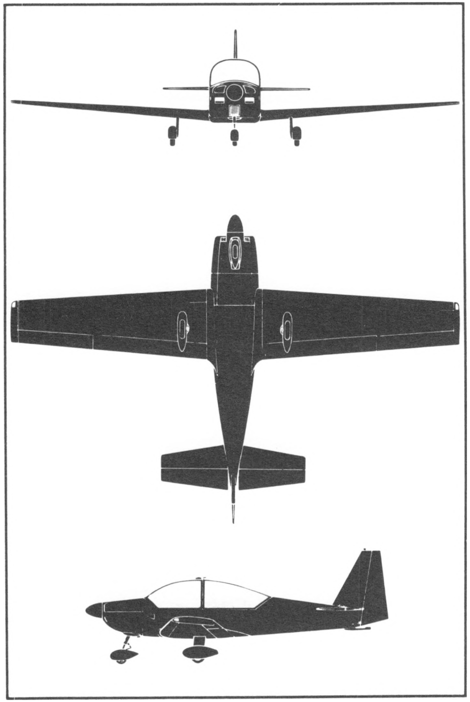
Fournier RF-6B/RFB RS 180 Sportsman

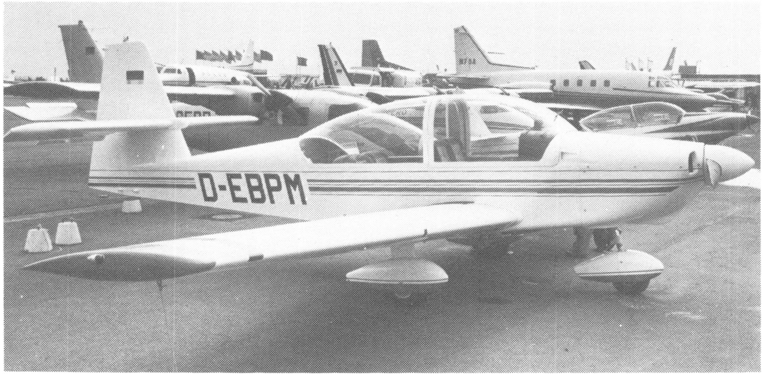
Confusion: Bravo

Power: 1 × Lycoming piston engine/
1 × Continental piston engine

Span: 10.5m

Length: (RS 180): 7.15m



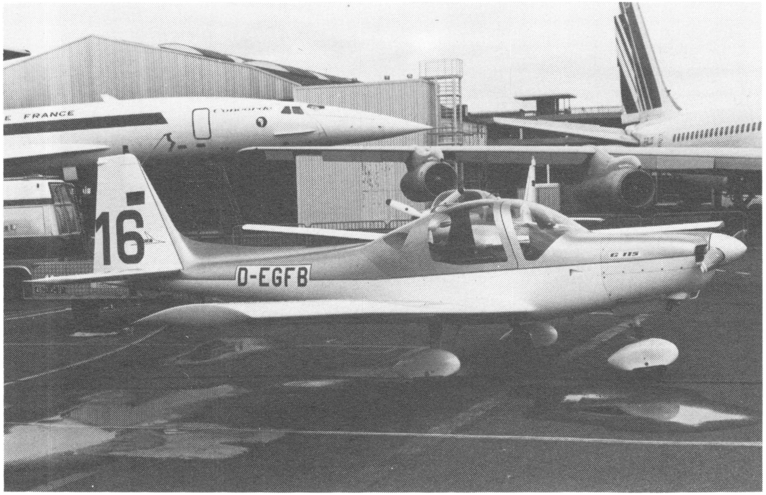


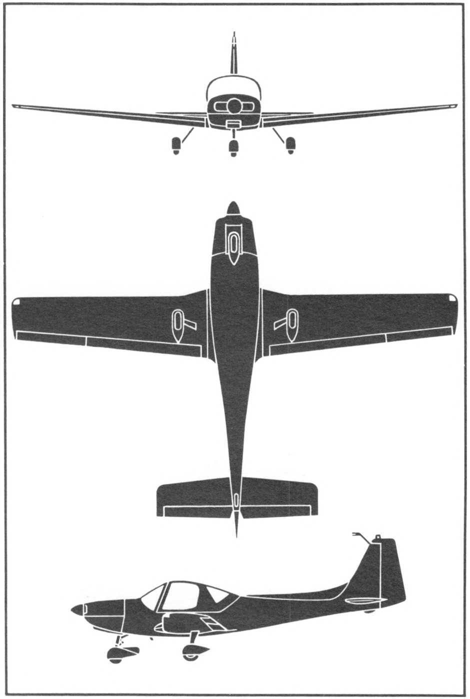
Designed by René Fournier, the four-seat RS 180 Sportsman first flew in 1973, powered by a 125hp Lycoming engine. Early production aircraft were designated RF6-180 and had the tailplane positioned on the top of the fuselage; in early 1978 the designation was changed to RS 180 and the tailplane was repositioned midway up the fin. The Fournier RF-6B, a generally similar but smaller two-seat version, first flew in 1974. Intended primarily for aerobatics and training, it has a one-piece transparent canopy and is powered by a 100hp Rolls-Royce Continental engine. Cruising speed of the RS 180 is 235km/h and that of the RF-6B about 190km/h. Production was suspended in 1981. *Countries of origin:* France/Germany. *Silhouette:* RF-6-180. *Picture:* RS-180.

Confusion: Fournier Sportsman

Grob G115

Power: 1 × Textron Lycoming 0-235 piston engine *Span:* 10m *Length:* 7.36m



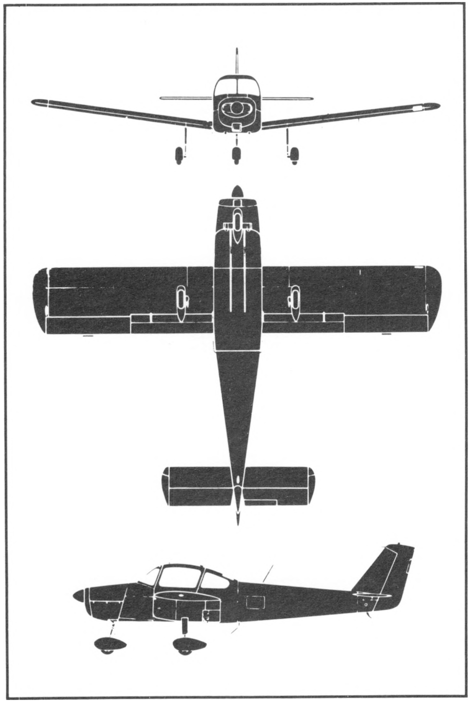


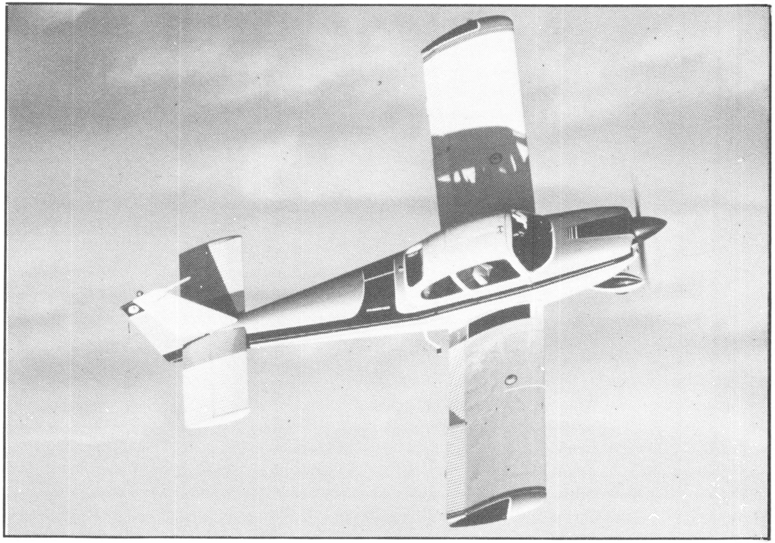
First flown in November 1985, the Grob 115 is a side-by-side two-seater which is in production at Mindelheim. The G115B has an uprated engine and a glider towing capability. By 1990, 60 115As and Bs had been ordered. The G115A has a maximum speed of 220km/h and maximum range of 1000km. *Country of origin:* Germany.

Fuji FA-200 Aero Subaru

Confusion: Vinka

Power: 1 × Lycoming piston engine *Span:* 9.42m *Length:* 8.17m



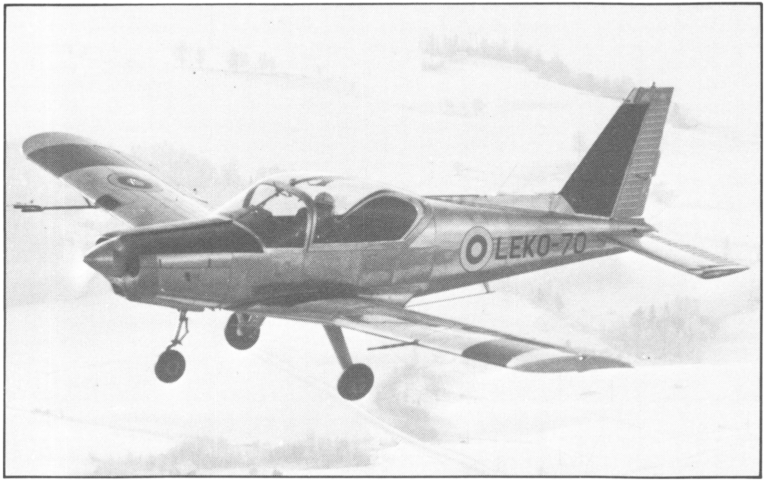


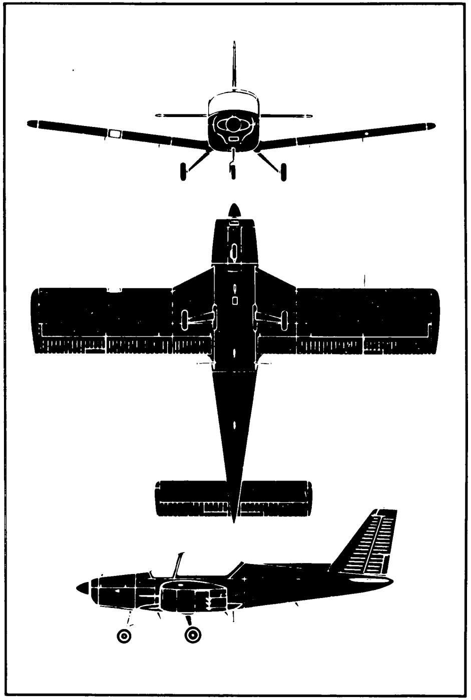
Design of this all-metal four-seat light aircraft began in 1964 and the type first flew in the following year. First production version was the FA-200-160 with a 160hp Lycoming engine. Two other versions have been built: the FA-200-180 with 180hp Lycoming engine and the FA-200-180AO with a 180hp Lycoming and fixed-pitch propeller. Total production all versions had reached 298 by early 1982, when production ceased. *Country of origin:* Japan.

Confusion: Uirapuru, FA-200

Valmet L-70 Vinka/Miltrainer

Power: 1 × Lycoming piston engine *Span:* 9.85m *Length:* 7.5m



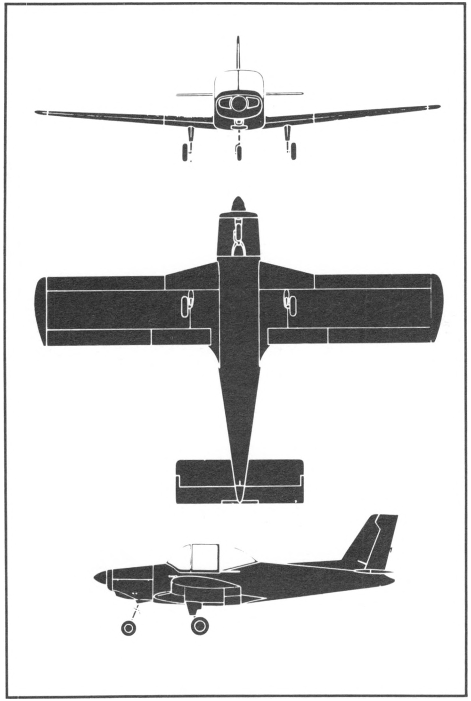


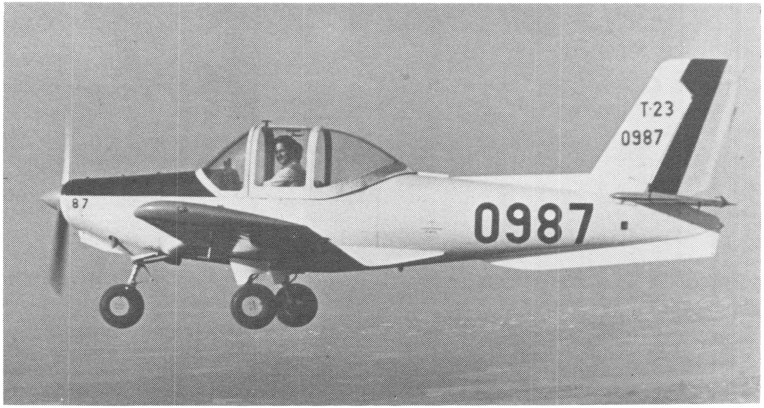
This two/four-seat training/touring light aircraft was first flown in 1975 and was produced to meet a requirement of the Finnish Air Force for a basic trainer to replace its Saab Safirs. A total of 30 were ordered, with deliveries completed by the end of 1982. Of conventional appearance and construction, the Vinka has a large one-piece rearward-sliding canopy and swept wing-root leading edges. Powered by a 200hp Lycoming engine, the Vinka cruises at 225km/h. The Vinka is known as the Miltrainer for export purposes. *Country of origin:* Finland.

Aerotec A-122 Uirapuru

Confusion: Vinka

Power: 1 × Lycoming piston engine *Span:* 8.5m *Length:* 6.6m

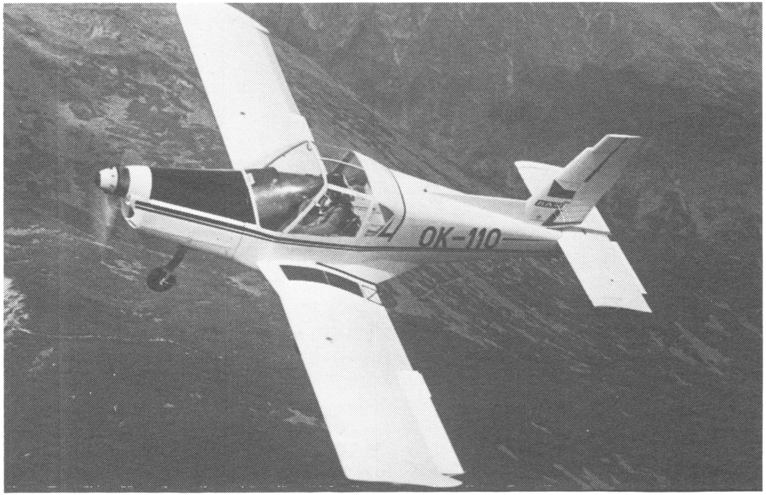


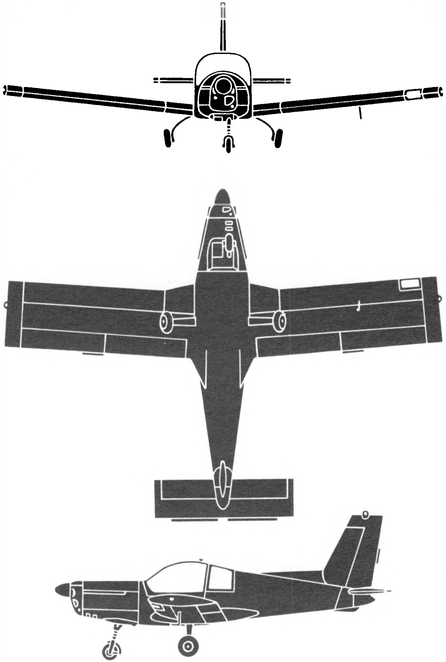


The two-seat Uirapuru first flew in 1965, powered by a 108hp Lycoming engine; it was followed by a second aircraft powered by a 150hp engine. An order for 30 A-122As was placed by the Brazilian Air Force in 1967, the aircraft being designated T-23 by the military. Powered by a 160hp Lycoming engine, the type was subsequently ordered by both Bolivia and Paraguay, while the quantity in Brazilian service was increased to 100. The civil version is designated A-122B and is similar to the A-122A but with a revised canopy. A total of 155 Uirapurus of all versions had been built by early 1977, when production ended. Cruising speed of the A-122A is 185km/h, that of the A-122B 195km/h. *Country of origin:* Brazil. *Silhouette and picture:* A-122A.

Zlin 42/43/142

Power: 1 × Avia or Lycoming piston engine *Span:* 9.11m *Length:* 7.07m



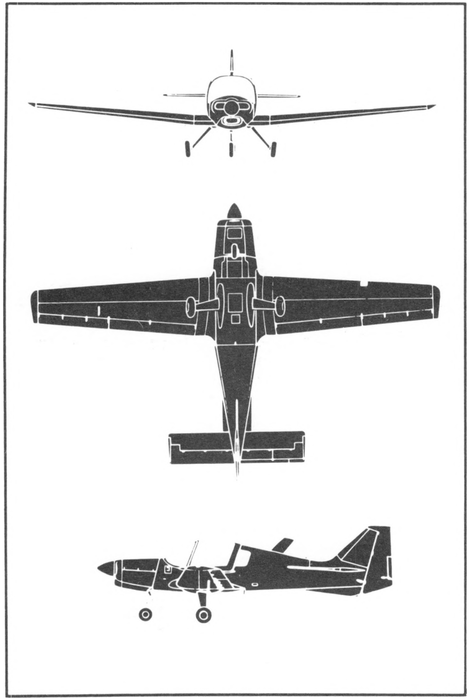


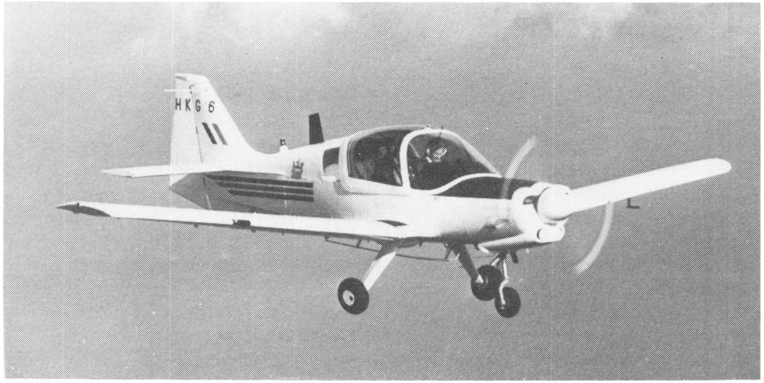
The two-seat Zlin 42, the first of a series of sporting and touring aircraft to be developed by the Moravan factory, first flew in 1967. Initial production aircraft were powered by a 180hp M137A engine and the principal operator was East Germany. Production of the Zlin 42M began in 1974. The Zlin 43, a larger, two/four-seat version of the Zlin 42, is powered by a 210hp Avia M337A. Current version, with retractable undercarriage, is the 142. Some 270 142s have been built. The 242 has straight wings and a Lycoming engine. *Country of origin:* Czechoslovakia. *Silhouette:* Zlin 142. *Picture:* Zlin 42M.

BAe Bulldog/Pup

Confusion: Dauphin, Zlin 42/43

Power: 1 × Continental or 1 × Lycoming piston engine *Span:* (Pup): 9.45m *Length:* (Pup): 6.99m

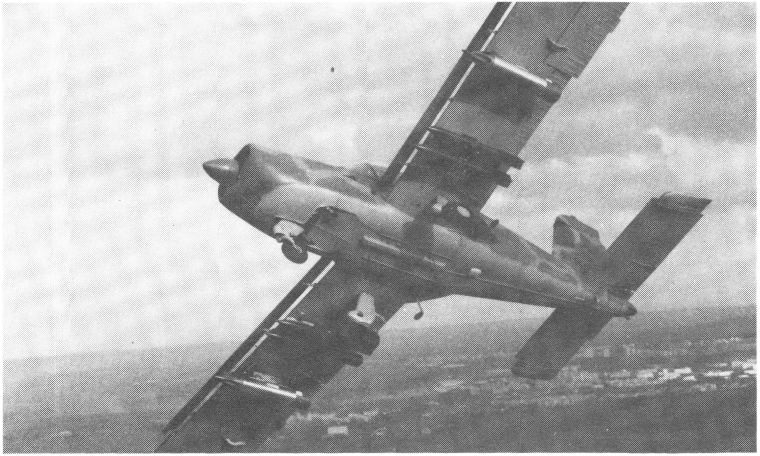


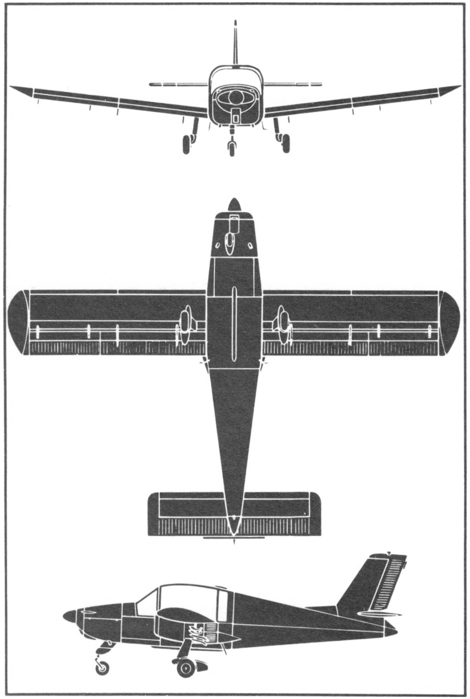


Three versions of the all-metal Pup were built. The B-121 Series 1 Pup 100, a two-seater powered by a 100hp Rolls-Royce Continental, first flew in 1967. The B.121 Series 2 Pup 150 was powered by a 150hp Lycoming engine and first flew in 1968. This version was fitted with an optional seat for a third adult or two children. Final variant was the Series 3 Pup 160, six of which were built for Iran. The Bulldog was developed in 1968 as a military trainer version and differed externally in being slightly larger and in having a fully transparent sliding canopy. It first flew in 1969 and production aircraft were fitted with a 200hp Lycoming. Customers include the RAF, Ghana, Nigeria, Jordan, Lebanon, Kenya and the Hong Kong Royal Auxiliary Air Force. Production was completed in 1982. *Country of origin:* UK. *Silhouette:* Bulldog. *Picture:* Pup 150.

Socata Rallye

Power: 1 × Continental piston engine *Span:* 9.74m *Length:* 6.97m



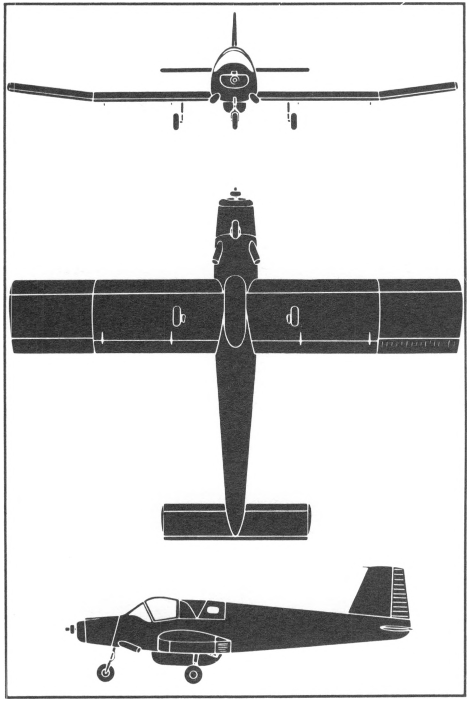


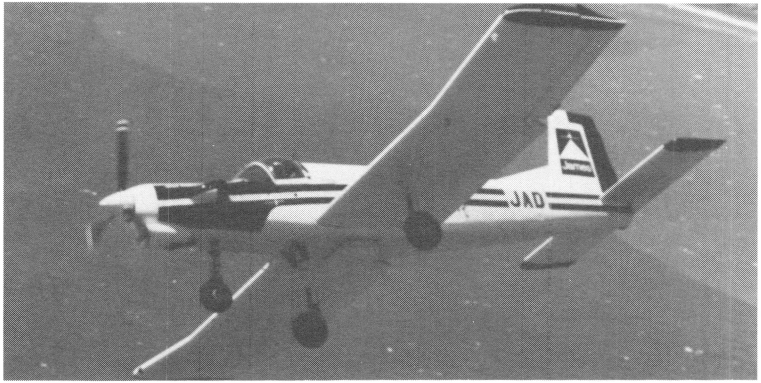
The Rallye family of light aircraft embraces several different aircraft, all originating from the Morane-Saulnier company's 90hp Rallye-Club of 1959. About 580 Rallyes were built by Morane-Saulnier. About a dozen different versions were built with engines ranging from 100hp to 235hp. Later versions were the R 235 Gabier and the armed Guerrier, operated by Rwanda and Senegal. The Rallye 100 is built under licence in Poland under the name Koliber. Cruising speeds range from 170km/h for the lowest-powered up to 245km/h for the 235hp variants. *Country of origin:* France. *Silhouette:* Rallye 100T. *Picture:* R 235 Guerrier.

PAC Fletcher FU-24/Cresco

Confusion: Rallye

Power: 1 × Lycoming piston engine *Span:* 12.81m *Length:* 9.70m



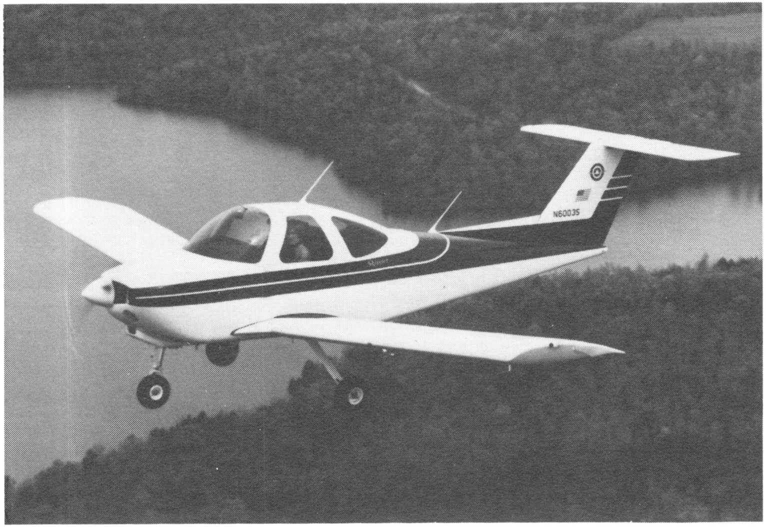


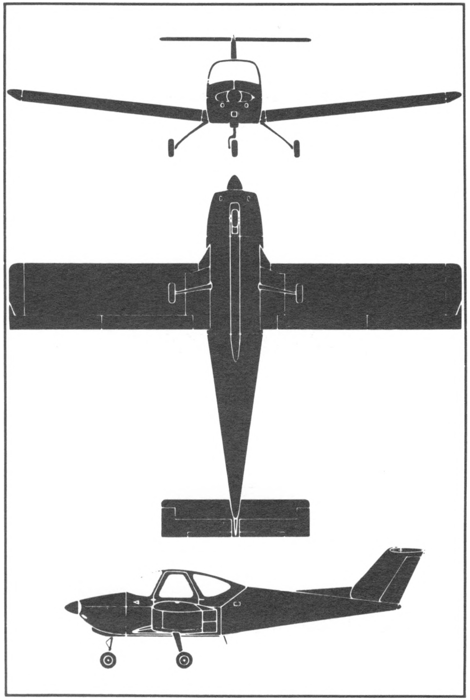
The FU-24 was initially designed by the Sargent-Fletcher company in the USA for agricultural top-dressing work in New Zealand and first flew in 1954. All manufacturing and sales rights were acquired by Air Parts in New Zealand in 1964 after 70 aircraft had been built in the US. Subsequently the type entered quantity production at Hamilton Airport, New Zealand. Customer countries include Australia, Bangladesh, Iraq, Pakistan, Thailand and Uruguay. Powered by a 400hp Lycoming, the FU-24 has an operating speed of 170–210km/h. A new version of the FU-24, the Cresco 08-600, is powered by an Avco Lycoming LTP101 turboprop and has many components in common with the standard aircraft. *Country of origin:* New Zealand. *Silhouette:* FU-24. *Picture:* Cresco.

Confusion: Tomahawk

Beechcraft Skipper

Power: 1 × Lycoming piston engine *Span:* 9.14m *Length:* 7.32m



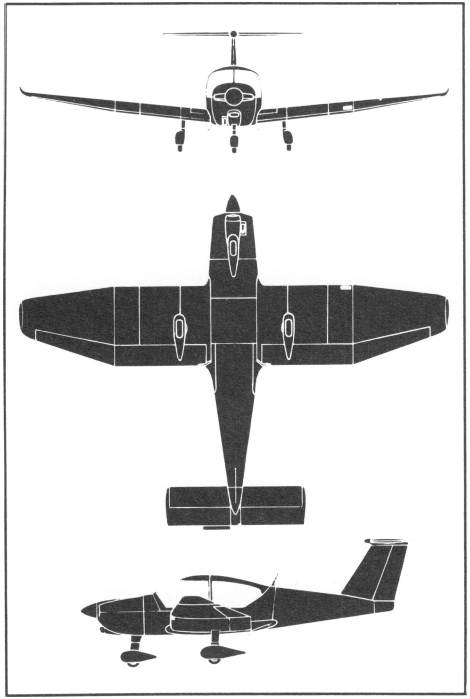


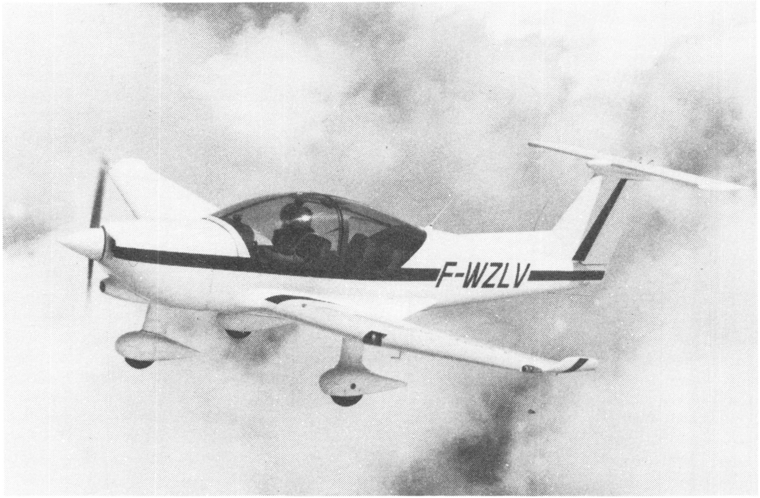
The prototype of this two-seat light trainer, designated PD 285, first flew in 1975, fitted at that time with a conventional tail. Production aircraft, designated Model 77, have the now fashionable T-tail. Some 304 Skippers had been delivered, mainly to Beech Aero Centres, by 1981, when production was suspended. The Skipper bears a marked resemblance to the Piper Tomahawk. *Country of origin:* USA.

Robin R 3000

Confusion: Skipper, Tomahawk

Power: 1 × Lycoming piston engine *Span:* 9.81m *Length:* 7.51m



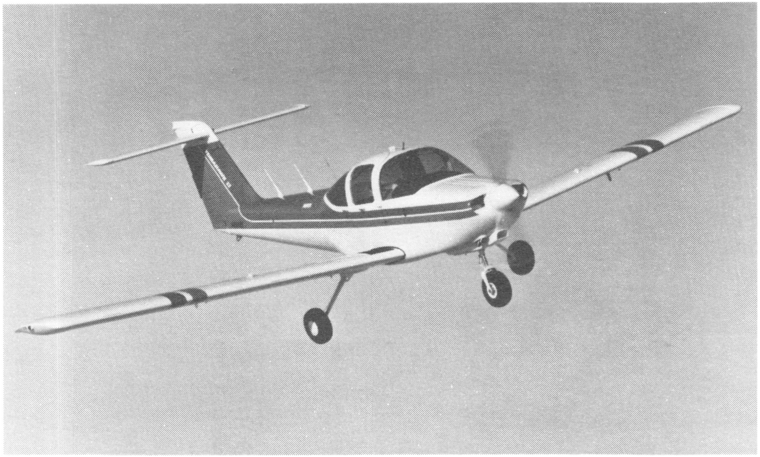


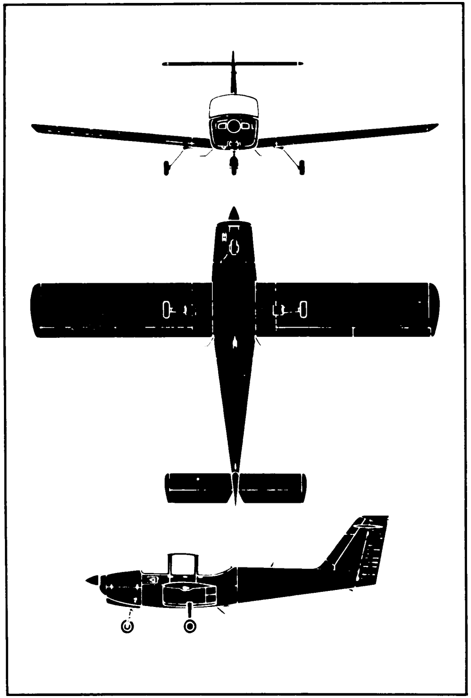
One of the later in the Robin series of light aircraft, the R 3000 is available with 116hp and 140hp engines. The second prototype, flown in June 1981, introduced the distinctive upturned wingtips. Unlike the Skipper or the Tomahawk, which also have high-set tailplanes, the R 3000 is fitted with streamlined undercarriage fairings. When fitted with the 116hp Lycoming 0-235 engine, maximum cruising speed is 215km/h. By 1991 some 50 of the 3000 series had been delivered. *Country of origin:* France.

Confusion: Skipper

Piper PA-38-112 Tomahawk

Power: 1 × Lycoming piston engine *Span:* 10.36m *Length:* 7.06m



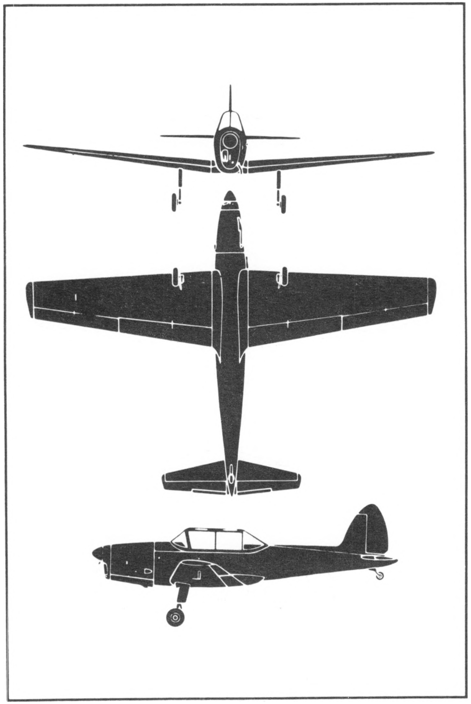


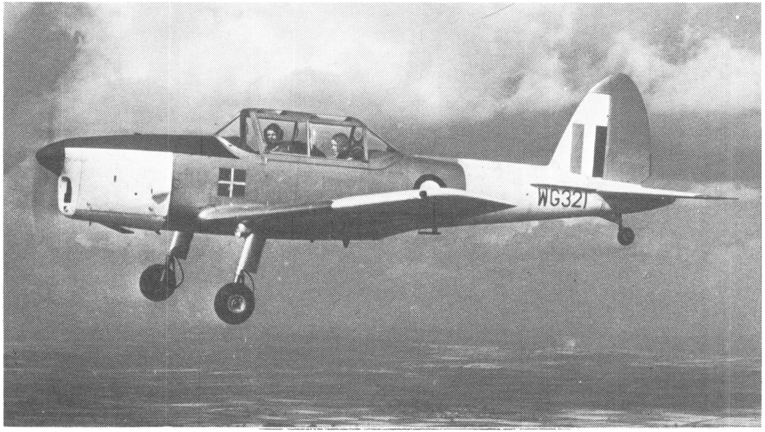
First introduced in 1978, this two-seat trainer followed the fashion of mounting the tailplane high on the fin. The cabin is also arranged for maximum all-round visibility by cutting down the rear fuselage decking. The Tomahawk bears a marked resemblance to Beechcraft's Skipper, but the Piper aircraft has a more substantial-looking vertical tail and lacks the small dorsal fin fairing of the Beechcraft. In 1981 the Tomahawk II was introduced, which incorporated internal changes. Production reached 2,497 of both versions before manufacture was suspended. *Country of origin:* USA.

DH DHC-1 Chipmunk

Confusion: HT-2

Power: 1 × de Havilland piston engine *Span:* 10.47m *Length:* 7.75m



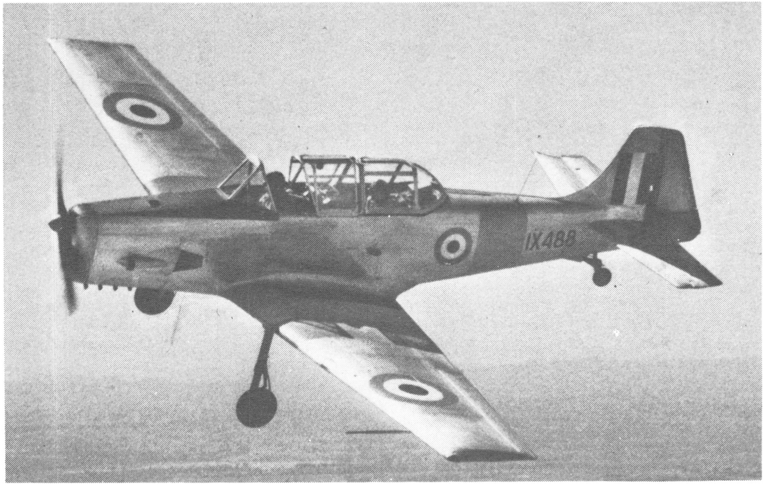


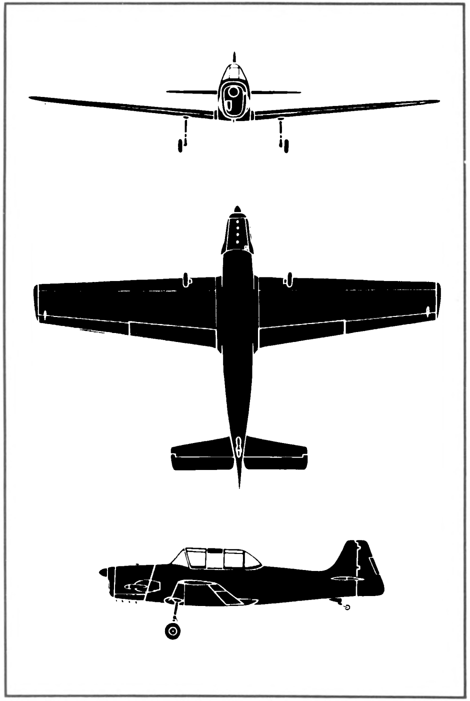
Designed by the Canadian de Havilland company, the tandem two-seat Chipmunk first flew in 1946. Some 220 were produced in Canada for both civil and military users; a further 60 were produced under licence by OGMA in Portugal. Production in the UK consisted of T.10s for the RAF and Mk 21s and 23s for civil users; Mk 22s are refurbished ex-RAF aircraft for civil use. The Mk 23 was a single-seat agricultural aircraft and the Mk 22A was a Bristol tourer version with a one-piece blown hood and wheel spats. Powered by a 145hp de Havilland Gipsy Major 10, the Chipmunk has a maximum cruising speed of 230km/h. Range is 730km. *Country of origin:* Canada. *Silhouette and picture:* T.10.

Confusion: Chipmunk

HAL HT-2

Power: 1 × Blackburn piston engine *Span:* 10.72m *Length:* 7.53m



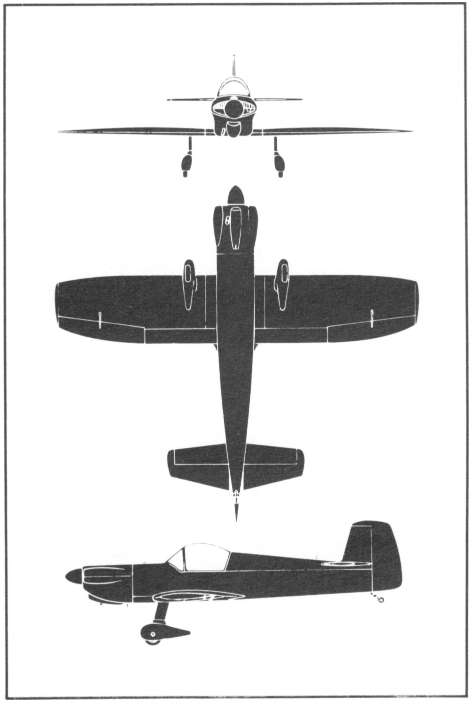


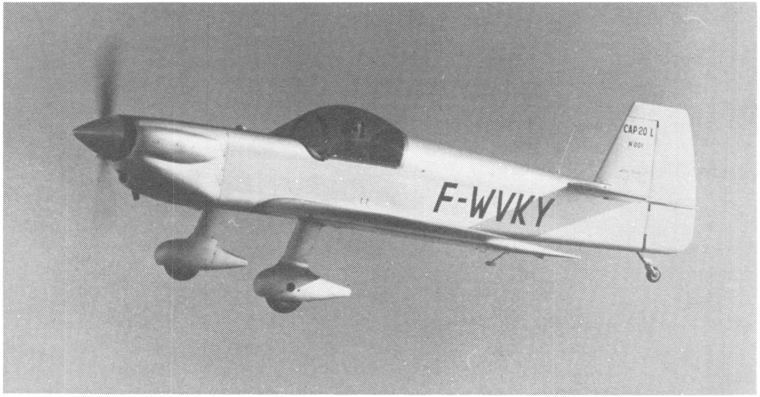
The tandem two-seat HT-2 was the first Indian powered aircraft of indigenous design and first flew in 1951. About 160 have been built, mostly for the Indian Air Force, Navy and civil users. Similar in appearance to the DHC-1 Chipmunk, though with a more angular fin and rudder, the HT-2 is powered by a 155hp Blackburn Cirrus Major III and cruises at about 185km/h. *Country of origin:* India.

Mudry CAP 10/CAP 20/CAP 21

Confusion: Emeraude

Power: 1 × Lycoming piston engine *Span:* (CAP 10): 8.06m *Length:* (CAP 10): 7.16m



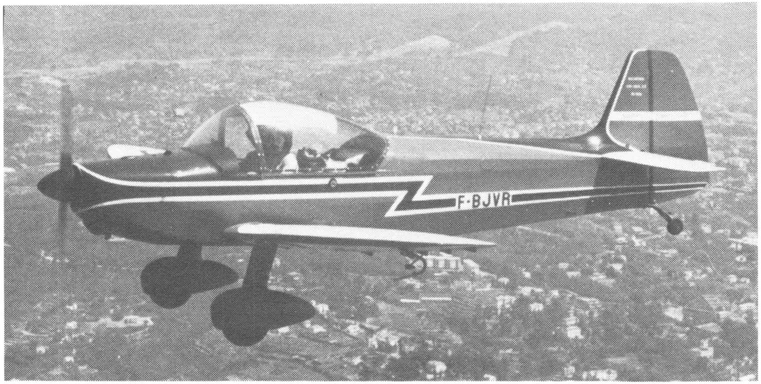


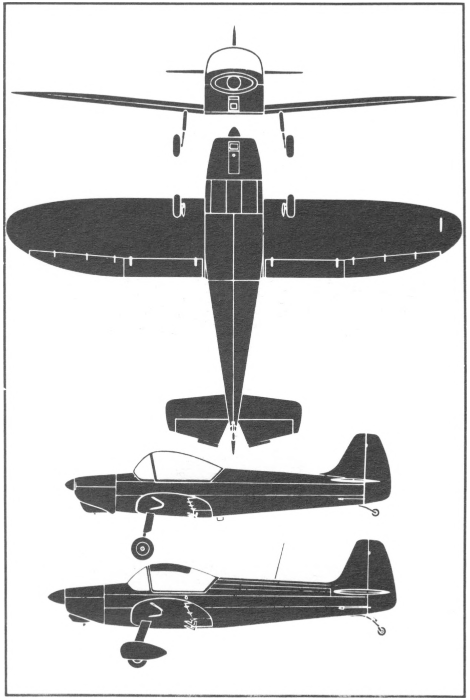
Developed from the Piel Emeraude, the two-seat all-wood CAP 10 is intended for use as a training, touring or aerobatic aircraft. First flight was in 1968 and a total of 230 CAP 10/10B have been built, including 30 for the French Air Force. The CAP 20 is essentially a single-seat derivative of the CAP 10, although of almost completely new design. It has been refined considerably since it first flew in 1969, and the latest version, the CAP 20L, is suitable for competition aerobatics. Production was terminated in 1981 to make way for the CAP 21, with a new wing and undercarriage. Powered by a 200hp Lycoming engine, the CAP-20L cruises at 265km/h, compared with 250km/h for the 180hp CAP 10B. *Country of origin:* France. *Main silhouette:* CAP 20. *Picture:* CAP 20L.

Confusion: CAP 10

Piel/Scintex CP 301 Emeraude

Power: 1 × Continental piston engine *Span:* 8.04m *Length:* 6.3m



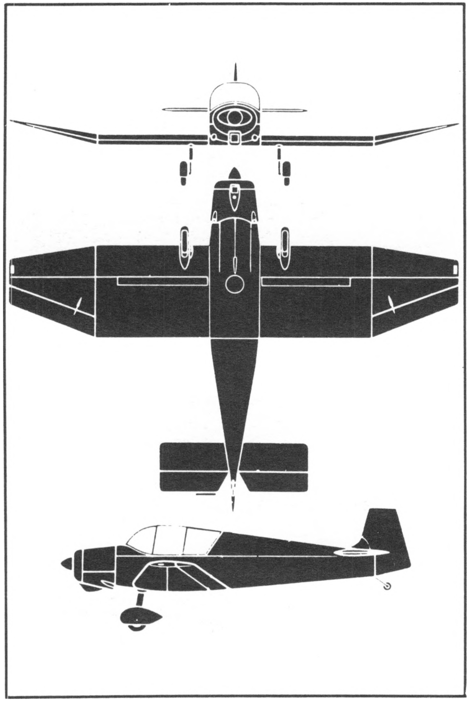


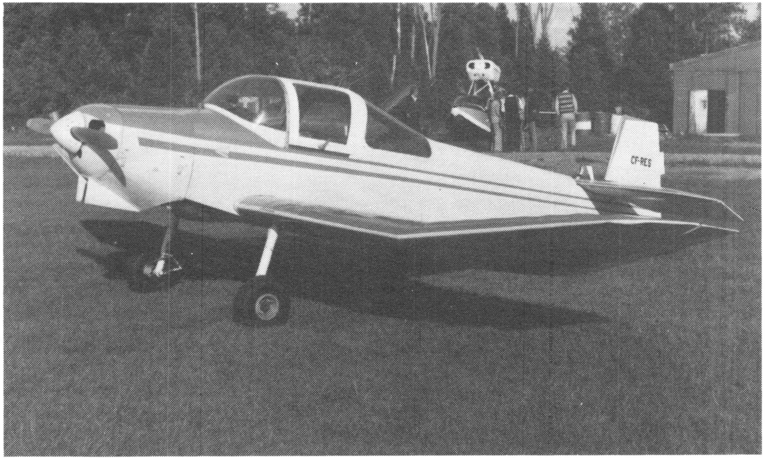
Designed by Claude Piel, the two-seat, all-wood Emeraude was first flown in 1952, with the first production aircraft flying the following year. Several versions have been built, commercially and by amateurs, powered by a variety of engines from 65 to 125hp. The Scintex Emeraude is largely similar to the Piel-built aircraft but features a one-piece blown canopy in place of the upwards-opening canopy doors of the latter. The CP 301 was built under licence in small quantities in Britain, where it was known as the Fairtravel Linnet, and in Germany by Binder Aviatik. The Super Emeraude is a slightly larger version with higher payload and improved performance. Powered by a 90hp Continental piston engine, the CP 301 Emeraude cruises at 200km/h. *Country of origin:* France. *Main silhouette:* CP 301; *lower side view:* Super Emeraude. *Picture:* Super Emeraude.

Jodel D.11/D.112/D.117

Confusion: DR 1050/1051

Power: 1 × Continental piston engine *Span:* 8.22m *Length:* 6.5m



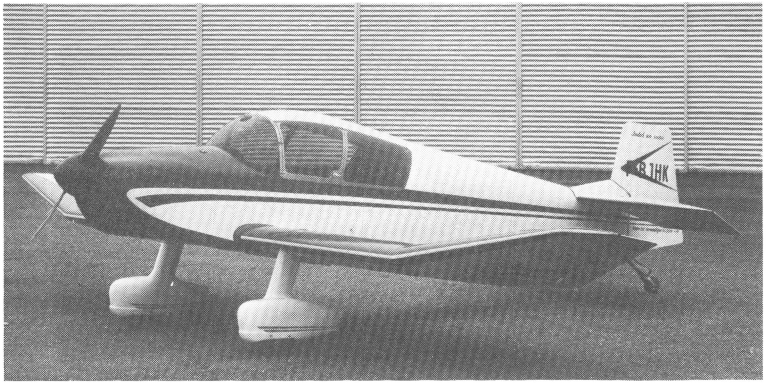


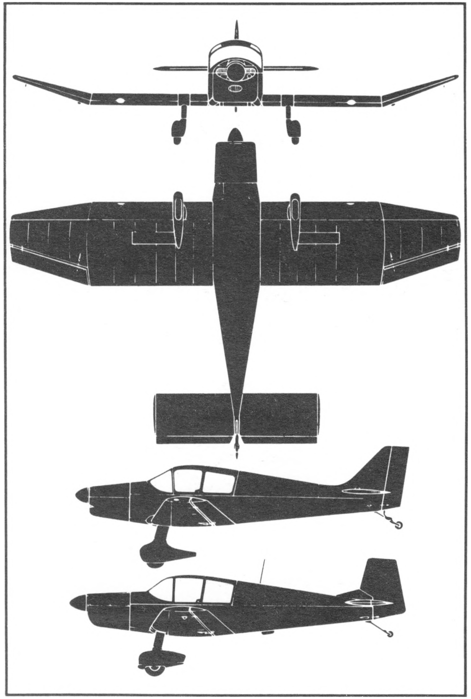
The D.11, the first two-seat light aircraft in the Jodel series, was developed from the D.9 Bébé. It first flew in 1950. The type has been built extensively by amateurs throughout Europe and North America. The D.112 is more widespread and is a refined version of the D.11. It has been built by Wassmer, SAN and Alpavia, aircraft built by the last two named companies being known as D.117s. Amateur-built examples powered by the 95hp Continental C90 are usually designated D.119. There are about 1,500 commercially built aircraft of the series. Cruising speed is 195km/h. *Country of origin:* France. *Silhouette and picture:* D.11.

Confusion: D.11/112

Jodel DR.1050/DR.1051 Ambassadeur/Sicile

Power: 1 × Continental or 1 × Potez piston engine *Span:* 8.72m *Length:* 6.35m



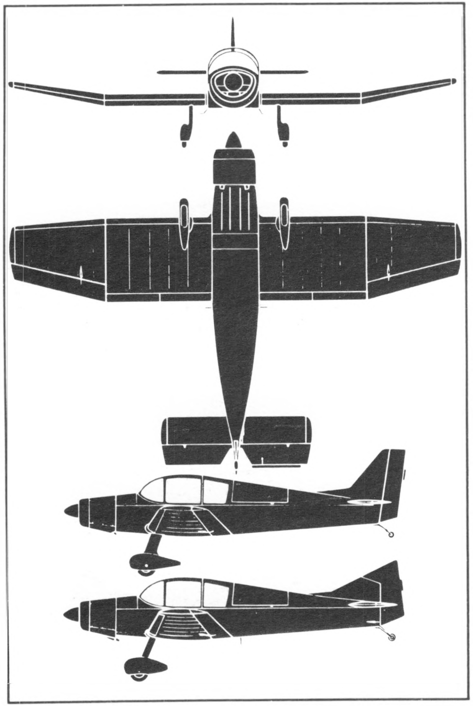


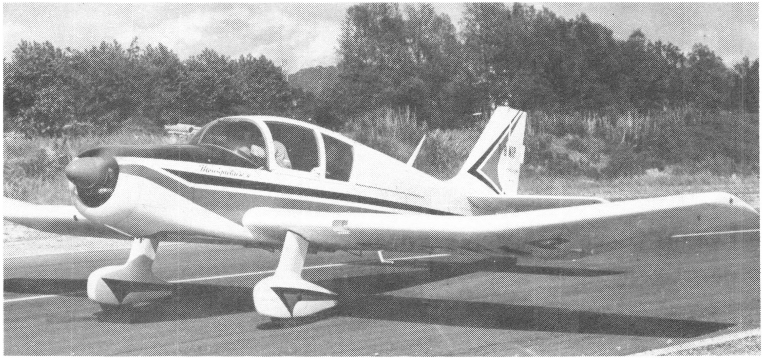
Centre Est was formed in 1957 to design and build the Jodel range of light aircraft. First in the series was the DR 100 Ambassadeur, which first flew in 1958. The first DR.1050 with a 100hp Continental was flown in 1959. A further version with a 105hp Potez engine was built in 1960 and designated DR.1051. These aircraft were also built under licence by Société Aéronautique Normande (SAN). In 1963 an improved Ambassadeur was announced, named the Sicile, with either a Continental (DR.1050) or Potez (DR.1051) engine. Last of the series were the DR.1050MM1 and DR.1051MM1 Sicile Record, with swept-back fin and rudder and one-piece elevator. Total production of the DR.100 and its derivatives amounted to more than 800 aircraft. *Country of origin:* France. *Main silhouette:* DR.1050; *upper side view:* DR.1050MM1. *Picture:* DR.1050.

Jodel D.140 Mousquetaire/Abeille/D.150 Mascaret

Confusion: DR.1050

Power: 1 × Continental or 1 × Potez piston engine *Span:* 10.27m *Length:* 7.92m



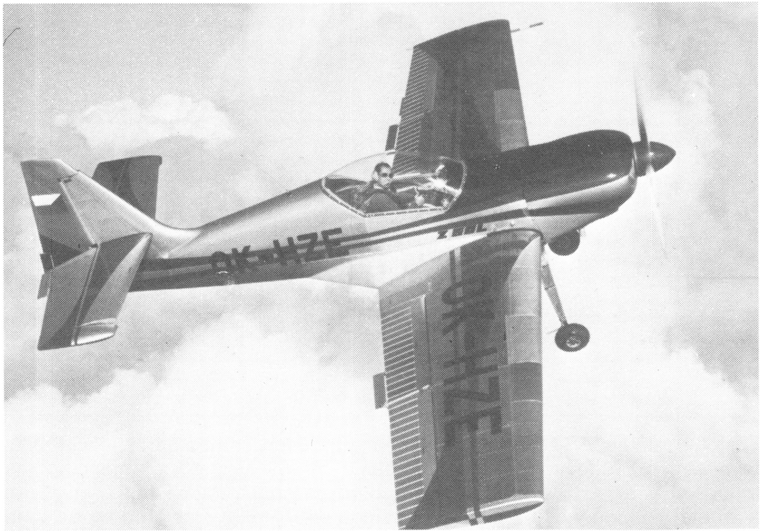


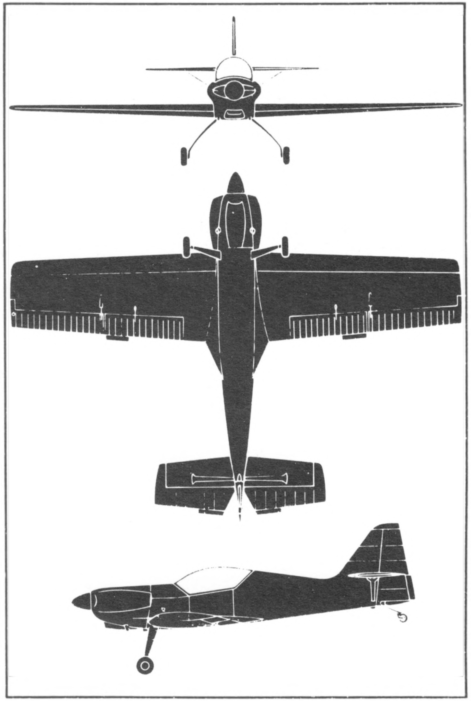
The Mousquetaire was developed by SAN as an economical four-seat light touring aircraft. It first flew in 1958 and sported a distinctive triangular fin, replaced in later aircraft with a conventional swept assembly. Five versions of the D.140 Mousquetaire were built, the sixth, the D.140R, being designated the Abeille. First flown in 1965, this aircraft was exclusively developed for glider towing and featured an extensively glazed cabin. The D.150 Mascaret is a two-seat light aircraft with a 100hp Continental or 105hp Potez. It is outwardly similar to the D.140 series but slightly smaller. Performance figures for the Mousquetaire include a maximum cruising speed at 2,300m of 240km/h; maximum sea-level rate of climb of 230m/min; and maximum-fuel range of 1,400km. *Country of origin:* France. *Main silhouette:* D.140; *lower side view:* D.140B. *Picture:* D.140.

Confusion: —

Zlin Z 50L/Z 50LS

Power: 1 × Lycoming piston engine *Span:* 8.58m *Length:* 6.62m



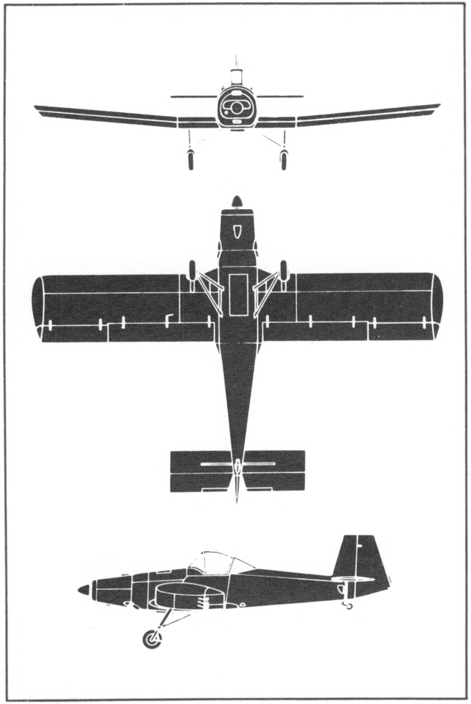


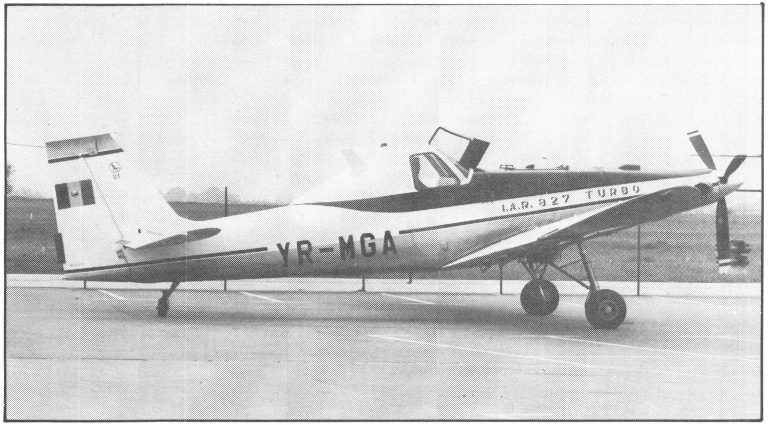
The Zlin Z 50L single-seat fully aerobatic competition aircraft first flew in 1975. The broad wings are of almost constant chord and are symmetrical in section, while the tailplane is braced on the underside. Current production versions are the Z 50LS and LA, fitted with a more powerful 300hp Lycoming and Z 50M. Over 50 of this type have been built. *Country of origin:* Czechoslovakia.

ICA-Brasov IAR-822/IAR-826/IAR-827/828

Confusion: Pawnee, Ipanema

Power: 1 × Lycoming piston engine *Span:* 12.8m *Length:* 9.4m



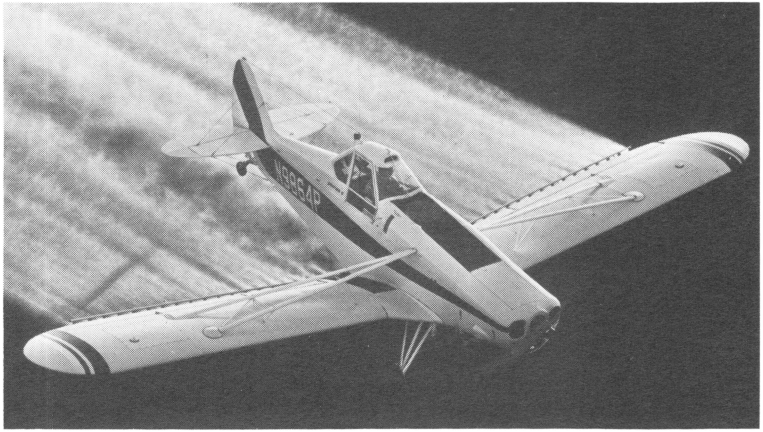


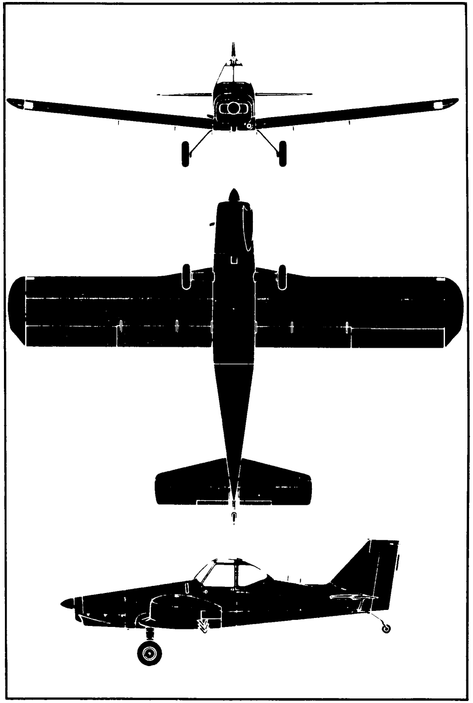
Prototype of the IAR-822 single/two-seat agricultural aircraft first flew in 1970, with series production of the first batch of 200 aircraft commencing the following year. Early aircraft were of mixed construction, but in 1973 an all-metal version was introduced, designated IAR-826. Powered by a 290hp Lycoming engine, the IAR-826 has an operating speed of 120–160km/h. The IAR-827A is a developed version of the all-metal IAR-826 with increased payload, a Polish radial engine and improved flying characteristics. Performance figures for the IAR-827 include a cruising speed of 195km/h and maximum rate of climb at sea level of 270m/min. Latest version is known as the -828 formerly known as the -827 TP. *Country of origin:* Romania. *Silhouette:* IAR-826. *Picture:* IAR-828.

Confusion: Ipanema, IAR-822

Piper Pawnee/Pawnee Brave/Brave

Power: 1 × Lycoming piston engine *Span:* (Pawnee): 11.02 *Length:* (Pawnee): 7.53m



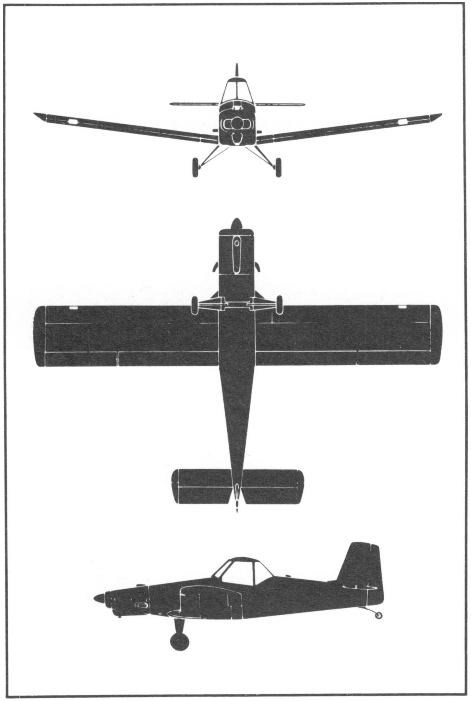


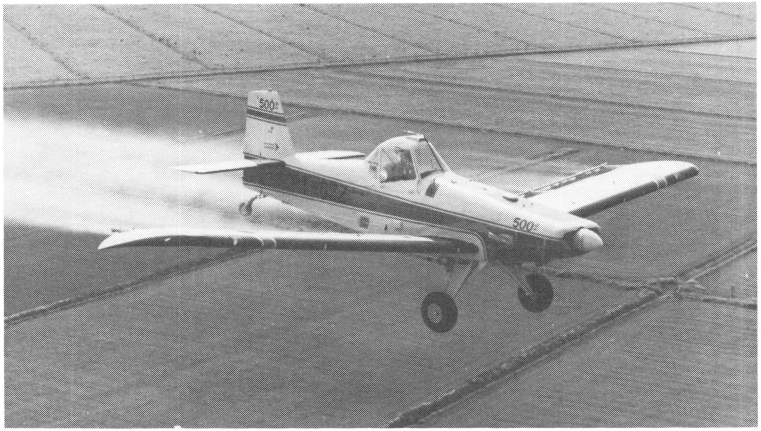
The original Pawnee single-seat agricultural aircraft first flew in 1959. The type had become one of the most used of all agricultural aircraft until production was suspended in 1982. Last production aircraft were the PA-25 Pawnee D, powered by a 235hp Lycoming engine and the PA-36 Brave, previously known as the Pawnee Brave. Two versions of the Brave were built: the basic Brave 300 powered by a 300hp Lycoming engine and the Brave 375 with 375hp Lycoming. The Brave is externally identifiable by its swept tail assembly, lack of wing bracing and simple sprung-steel undercarriage. *Country of origin:* USA. *Silhouette:* Brave. *Picture:* Pawnee D.

EMBRAER EMB-201 Ipanema

Confusion: Pawnee, IAR-822

Power: 1 × Lycoming piston engine *Span:* 11.69m *Length:* 7.43m



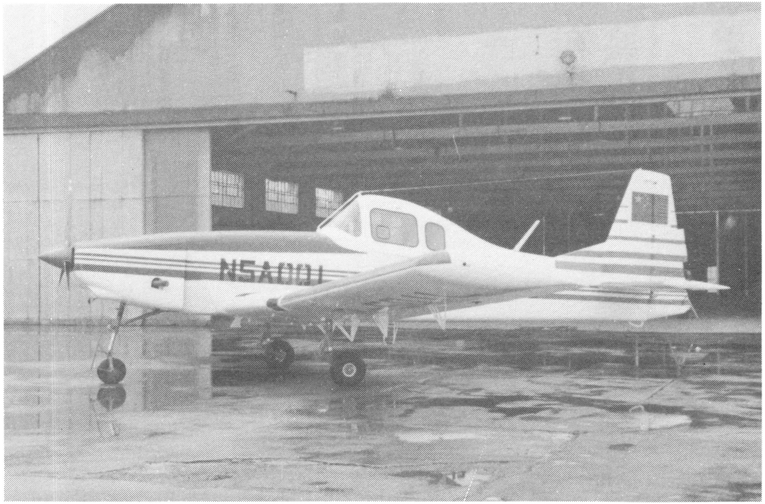


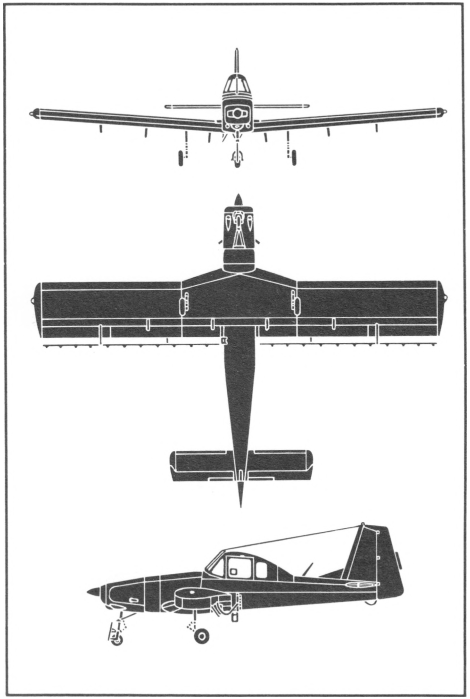
The original version of this single-seat agricultural aircraft was designed to a specification laid down by the Brazilian Ministry of Agriculture and first flew in 1970. The following versions have been built: EMB-200 and EMB-200A, of which 73 were built between 1970 and 1974; EMB-201, the developed version with new wing leading-edge and wingtips, of which 188 were built; the current-production EMB-201A, first flown in 1977 with several minor aerodynamic refinements. More than 600 Ipanemas of all versions have been sold. A glider-tug version has also been built, designated EMB-201R. Three examples have been delivered to the Brazilian Air Force. *Country of origin:* Brazil. *Silhouette:* EMB-200. *Picture:* EMB-201.

Confusion: Ipanema, Ag Wagon

Nanchang N-5A

Power: 1 × IO-720 piston engine *Span:* 13.4m *Length:* 10.48m



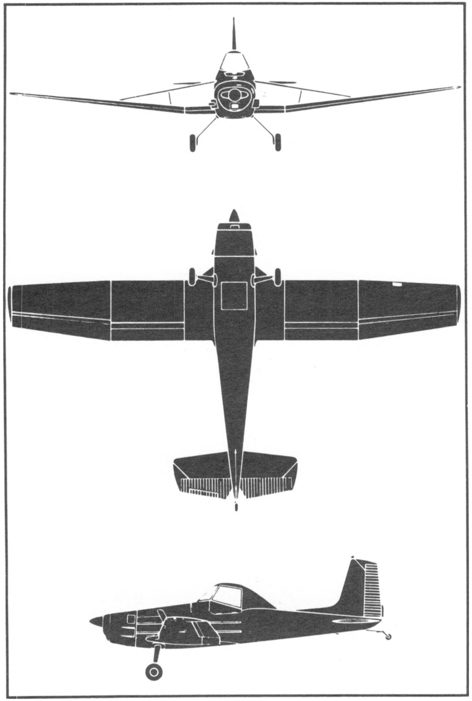


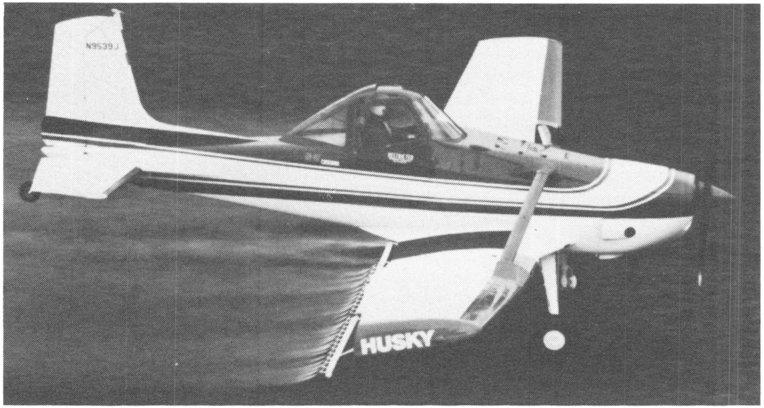
A single/two-seat agricultural aircraft, the Nanchang N-5A has a glass fibre liquid/dry chemical hopper mounted forward of the cockpit; the design is unusual in having a tricycle undercarriage. An American flat-eight engine and propeller are fitted, along with American avionic equipment. The Chinese domestic requirement for aircraft of this type is 300 plus and the type is likely to be exported. First flight of the N-5A took place in December 1989. *Country of origin:* China.

Cessna Ag Wagon/Ag Truck

Confusion: Basant, Quail, UTVA-65

Power: 1 × Continental piston engine *Span:* 12.41m *Length:* 8m



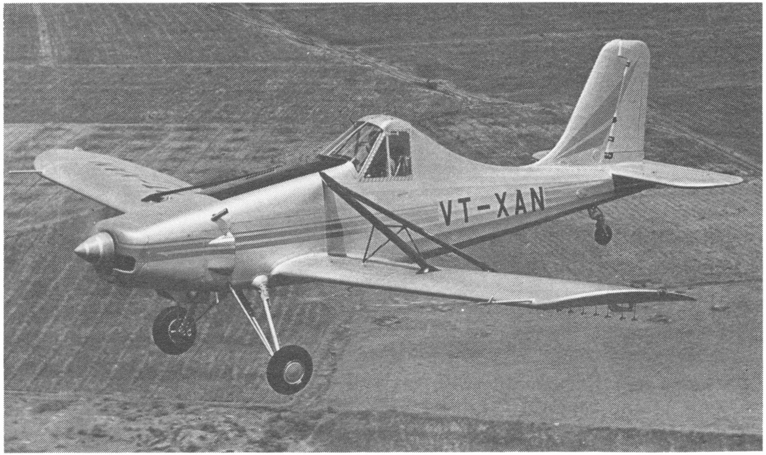


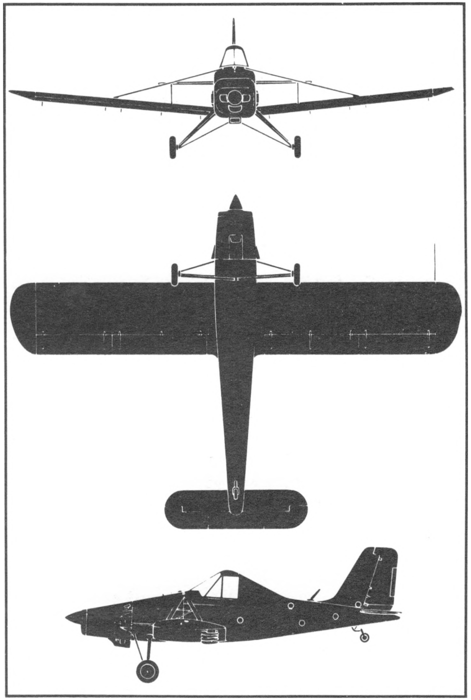
The original Model 188 Ag Wagon first flew in 1965, powered by a 230hp Continental, and incorporated a number of components common to the Model 180 high-wing aircraft of that vintage. In late 1971 Cessna introduced a new range of agricultural types, three of which were based on the earlier aircraft. The Ag Wagon is powered by a 300hp Continental engine and is a conventional agricultural aircraft with strut-braced wings and enclosed cockpit. The Ag Truck is similar to the Ag Wagon, but has a slightly longer wing, a larger hopper and other equipment refinements. Ag Wagon production has ceased. A turbocharged version of the Ag Truck is called the Ag Husky. Production of Trucks and Huskys ceased in 1985 after 2,335 had been built. *Country of origin:* USA. *Silhouette:* Ag Wagon. *Picture:* Ag Husky.

Confusion: Ag Wagon, Privrednik

HAL HA-31 Basant

Power: 1 × Lycoming piston engine *Span:* 12m *Length:* 9m



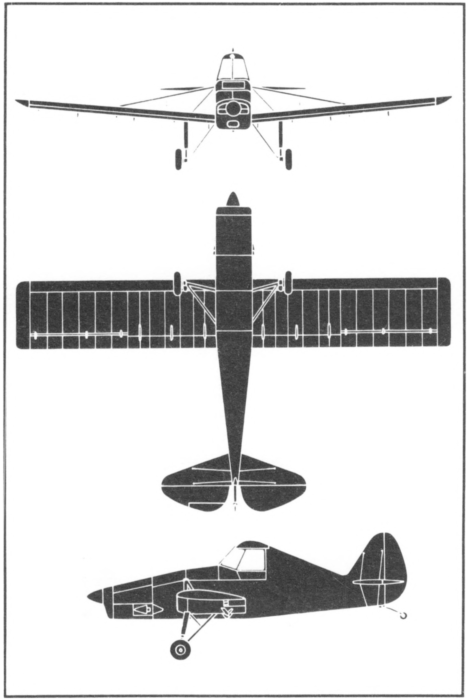


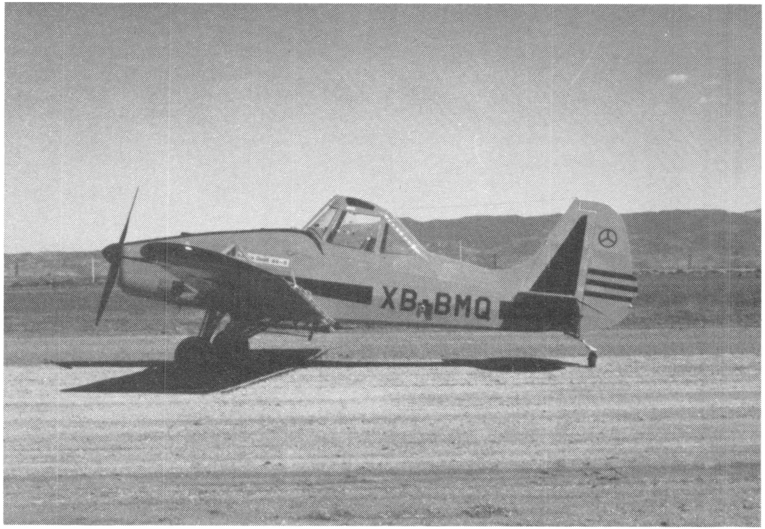
The HAL HA-31 Basant (Spring) was originally powered by a 250hp Rolls-Royce Continental but was subsequently completely redesigned as the HA-31 Mk II and re-engined with a 400hp Lycoming; it first flew in this form in 1972. A pre-production batch of 20 was built, the first eight of which were handed over to the Indian Ministry of Food and Agriculture in 1974. Series production finished in 1980 after 40 aircraft had been built. The Basant is of conventional design and construction for an agricultural aircraft, with strut-braced wings and a swept fin and rudder. Cruising speed is about 185km/h. *Country of origin:* India.

AAMSA A9B-M Quail

Confusion: Basant, Ag Truck, Privrednik

Power: 1 × Lycoming piston engine *Span:* 10.59m *Length:* 7.32m

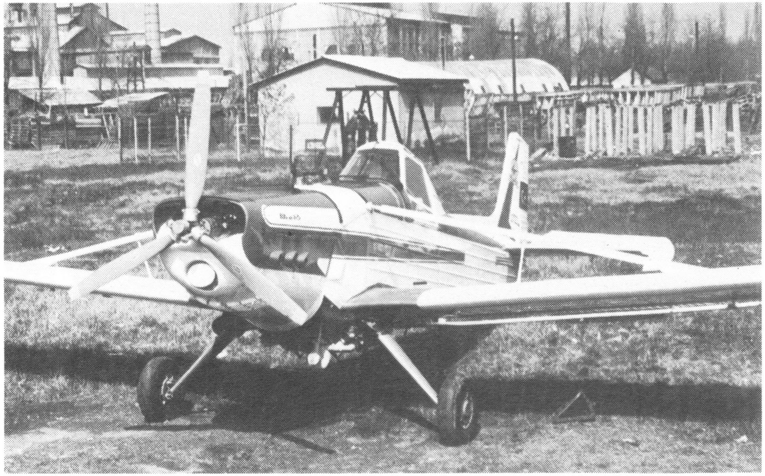


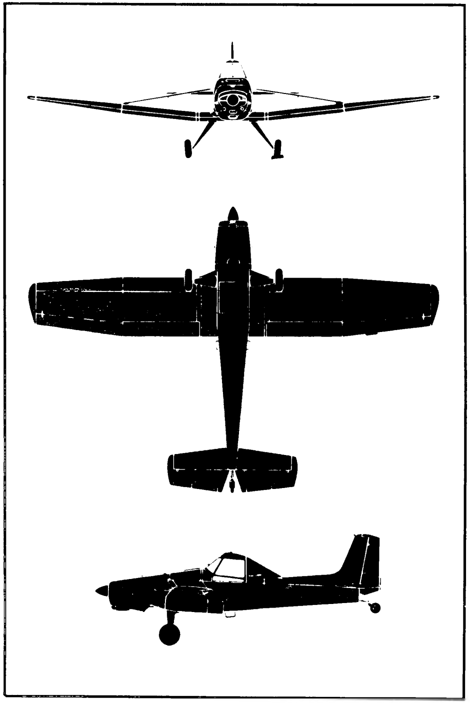


In the 1970s the Mexican AAMSA company took over production of the Aero Commander Quail and Sparrow Commander from Rockwell in the USA. The Sparrow Commander is no longer on the line but the Quail is believed to be in production under the designation A9B-M. The Quail has a normal operating speed of 145–161km/h and has a 795 litre fertiliser/insecticide hopper. *Country of origin:* Mexico. *Silhouette:* Quail Commander. *Picture:* A98-M Quail.

UTVA UTVA-65 Privrednik

Power: 1 × Lycoming piston engine *Span:* 12.22m *Length:* 8.46m



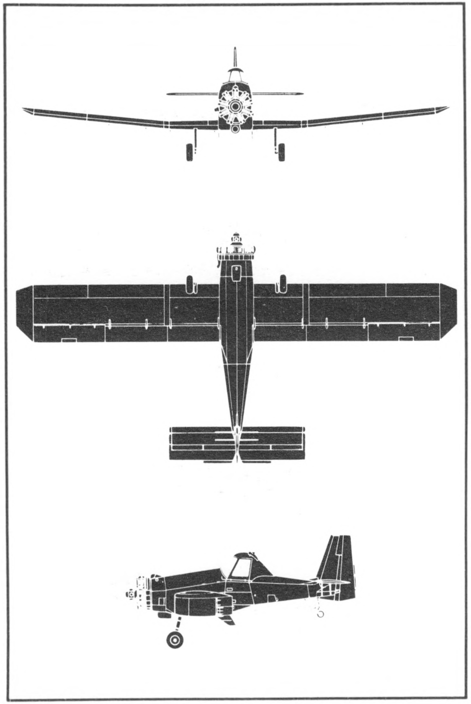


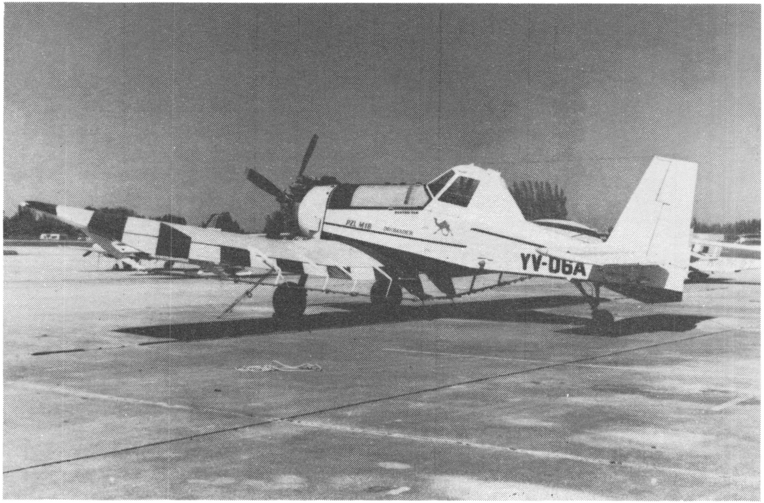
The single-seat UTVA-65 agricultural aircraft first flew in 1965 and combines the basic wings, tail assembly and undercarriage of the four-seat high-wing UTVA-60 with a new all-metal fuselage. In common with most low-winged agricultural aircraft, the UTVA-65 has a high-set, well-protected cockpit located approximately halfway along the fuselage, with a hopper forward of the cockpit. Powered by a 295hp Lycoming piston engine, the UTVA-65 has a maximum speed of 200km/h. *Country of origin:* Yugoslavia.

WSK-PZL Mielec M-18 Dromader

Confusion: Kruk, Thrush Commander

Power: 1 × PZL piston engine *Span:* 17.7m *Length:* 9.47m

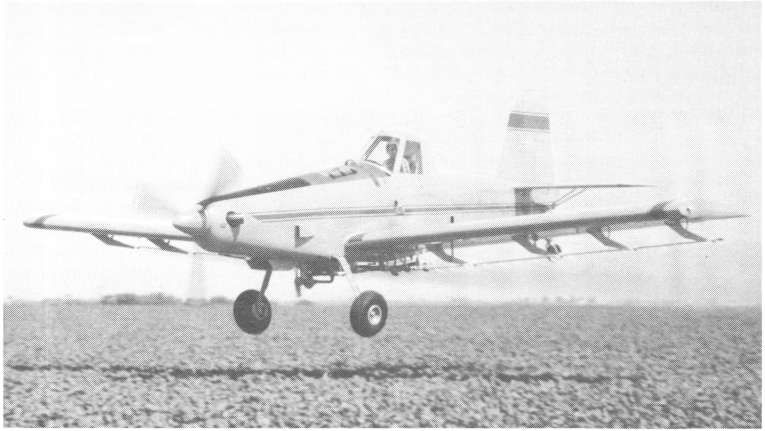


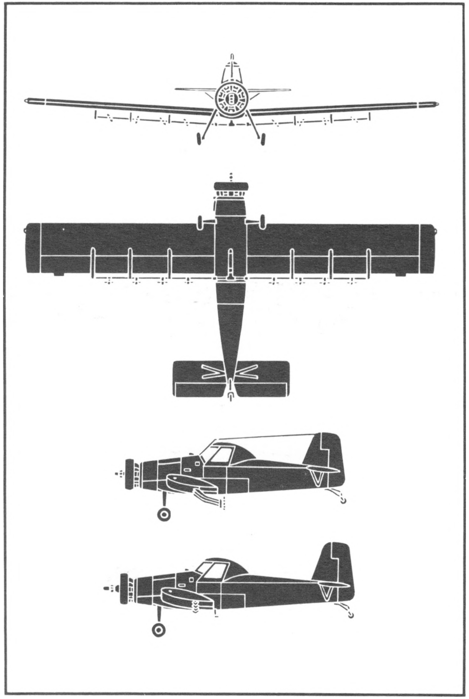


Significantly larger than the Kruk, which is also made in Poland, the M-18 Dromader first flew in 1976 and 230 had been built by early 1984. A two-seat version, designated M-18A, is also available and a reduced capacity version known as the M-21 Mini, with a lower powered engine, has been developed. The Dromader has an operating speed of 170–190km/h and a maximum range of 520km. A development is the M-24 Dromader Super, first flown in 1987. *Country of origin:* Poland.

Air Tractor AT-401/501/502/503

Power: (-401): R-1340 radial *Span:* (-401): 14.97m *Length:* 8.23m



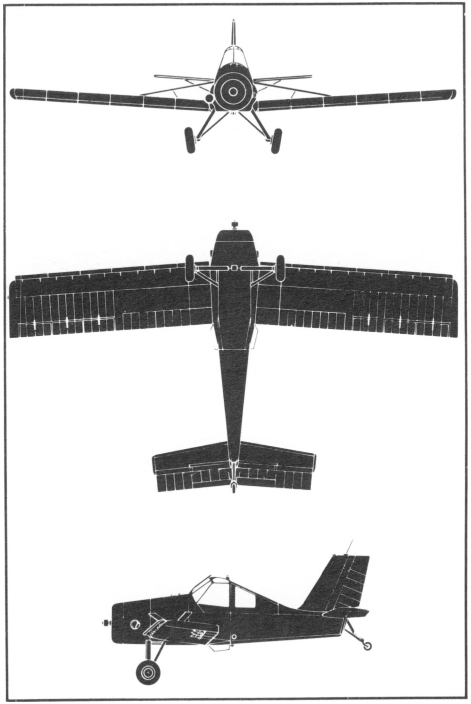


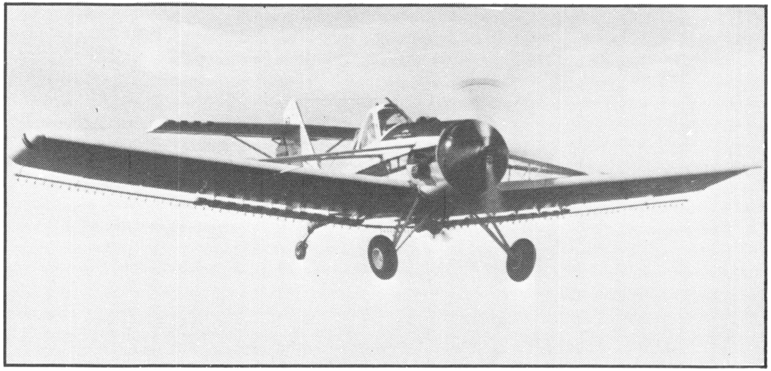
Air Tractor Inc has produced a series of agricultural aircraft. The AT-401 has a Pratt & Whitney radial engine and was developed from the AT-301, while the AT-401A has a PZL-3s radial and a four-blade propeller. Over 100 AT-401s have been produced. The AT-400 and AT-402, powered by PT6 turboprop, are called Turbo Air Tractor, the -400 having a short span wing. The AT-501 reverts to the R-1340 radial but can be converted to turboprop. The AT-502 is PT6-powered and is used for low density fertilisers, the AT-503/A is a two-seater for anti-narcotics work and the AT-802 is a turboprop two-seater – the largest aircraft of the family. *Country of origin:* USA. *Silhouette:* AT-401; *lower side view:* AT-501; *Picture:* AT-400.

PZL-Warszawa PZL-106 Kruk

Confusion: Tauro

Power: 1 × PZL piston engine *Span:* 14.8m *Length:* 9.1m



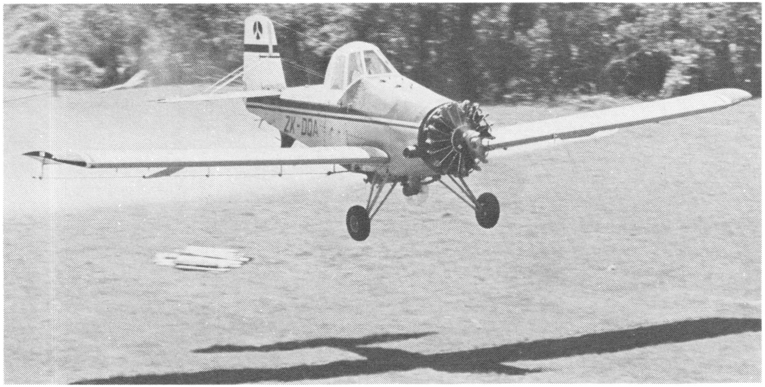


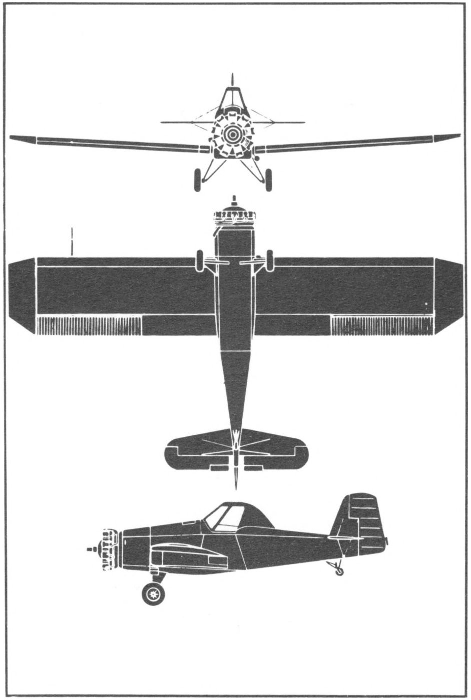
Intended as a replacement for the PZL-101 Gawron, the PZL-101M Kruk (Raven) was designed in the early 1960s. Initially powered by a 260hp Ivchenko engine, the aircraft was progressively refined into the PZL-106A. The PZL-106 first flew in 1973, powered by a 400hp Lycoming engine; production aircraft are fitted with a 600hp PZL-35 seven-cylinder radial. Production commenced in 1976. With a 1,000hp engine the Kruk is designated -106AS. The Kruk can carry its maximum chemical payload of 1,000kg at an operating speed of 120–160km/h. A further development is the PZL-106BT Turbo-Kruk, fitted with a Walter M601D turboprop engine. The Turbo-Kruk made its first flight in September 1985. *Country of origin:* Poland. *Silhouette:* PZL-106A. *Picture:* PZL-106.

Confusion: —

Ayres Thrush/Turbo-Thrush

Power: 1 × R-1340 or 1 × R-1300 piston engine or 1 × PT6A turboprop *Span:* 13.51m *Length:* 8.95m



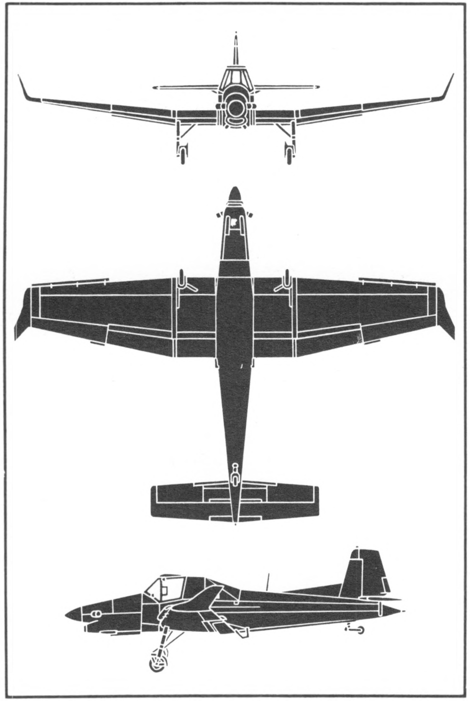


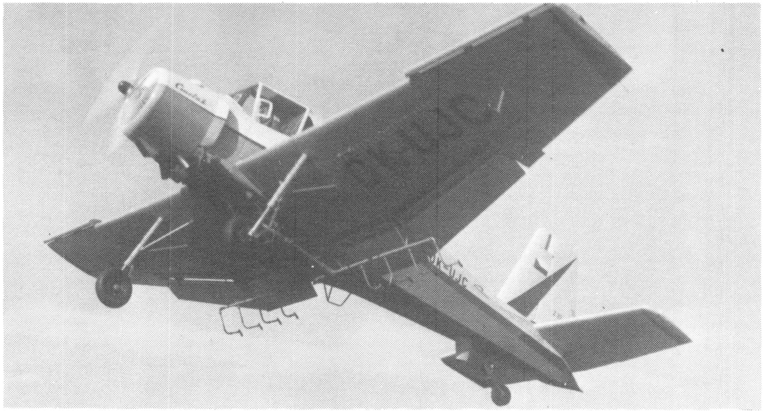
Ayres Corporation acquired the manufacturing rights to the Rockwell Thrush Commander 600 in 1977 and has the following versions in production: Thrush-600 with 600hp Pratt & Whitney Wasp radial and the Turbo-Thrush S-2R, similar to the Model 600 but powered by a 750shp Pratt & Whitney turboprop. The Pezetel Thrush has a 600hp Polish radial and Bull Thrush (now Thrush 52R-R1820/510) has a 1,200hp Wright Cyclone. Working speed of the Model 600 is 170–185km/h, that of the Turbo-Thrush 153–241km/h. Both the Thrush and the Turbo-Thrush have as standard a 1.5m³ hopper capable of holding up to 1,514 litres of liquid or 1,487kg of dry chemicals. *Country of origin:* USA. *Silhouette and picture:* Thrush-600.

Zlin Z-37 Cmelak

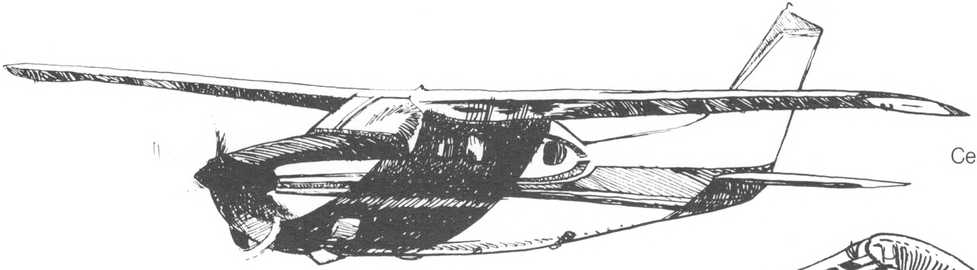
Confusion: —

Power: 1 × M462 piston engine or Motorlet turboprop *Span:* 12.22m *Length:* 8.55m

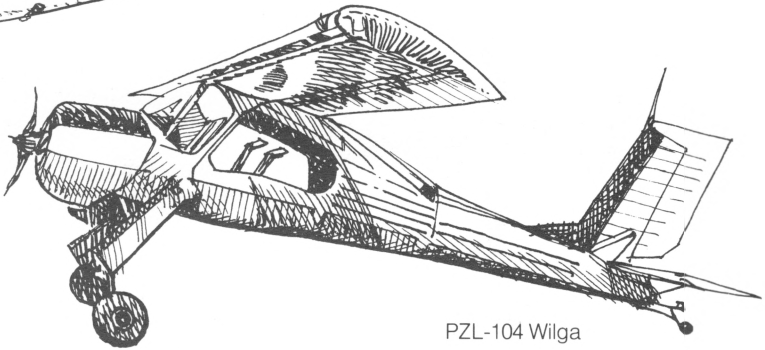




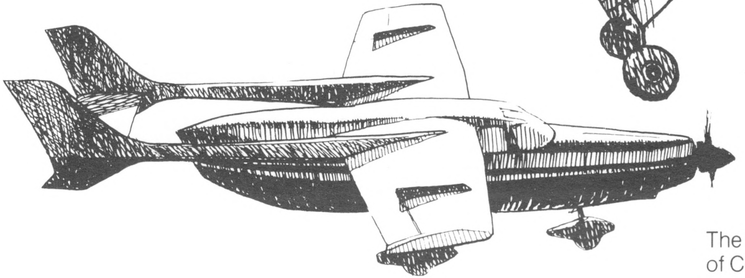
First flown in 1963, this agricultural and light utility aircraft entered series production in 1965. An improved version, the Z-37A, was introduced in 1971. It features some structural reinforcement and incorporates corrosion-resistant materials. A total of more than 700 Cmelaks (Bumble Bees) were delivered, and operators include Bulgaria, Czechoslovakia, Finland, Germany, Hungary, India, Iraq, Poland, UK and Yugoslavia. Let has also built some 27 examples of a two-seat training version, the Z-37A-2. Latest version is the Z-37T powered by a Motorlet turboprop. This has a fin fillet and winglets at the tips. A two-seat Z-37T is also available and the Z-37T-2 for training. *Country of origin:* Czechoslovakia. *Silhouette:* Z-37T. *Picture:* Z-37.



Cessna Cardinal RG11



PZL-104 Wilga

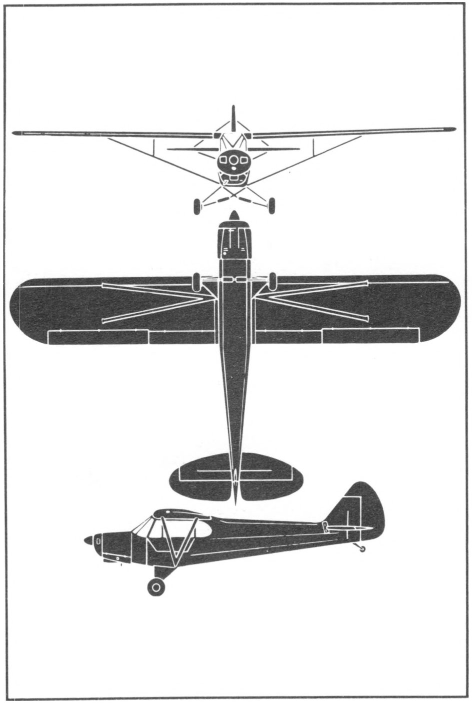


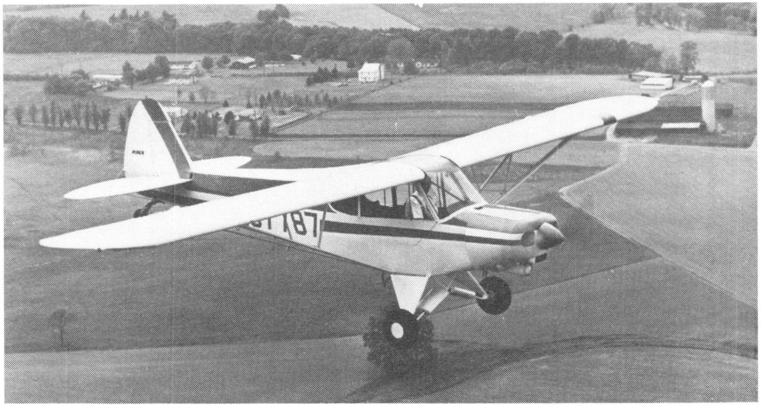
The Stolifter, a conversion
of Cessna 337 Skymaster

Piper PA-18 Super Cub

Confusion: Autocrat

Power: 1 × Lycoming piston engine *Span:* 10.73m *Length:* 6.88m



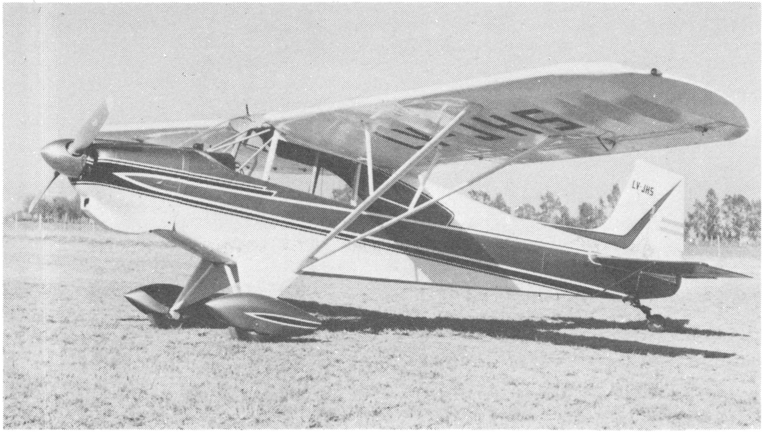


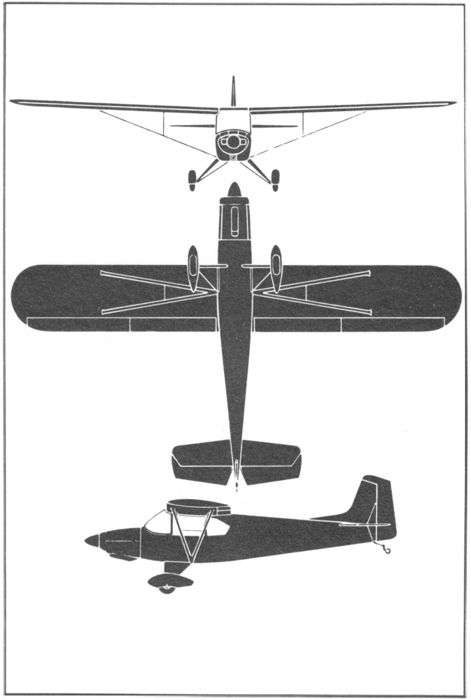
The original Super Cub, powered by a 90hp Continental, was first certificated in 1949 and was itself the successor to a long line of Piper light aircraft which began with the Taylor E-2 Cub of 1931. Later aircraft include the J-3 Cub of 1938, the PA-12 Super Cruiser of 1940 and the Vagabond, which was the forerunner of the Tri-Pacer line. Retaining the tandem two-seat arrangement, the current Super Cub is powered by a 150hp Lycoming, giving it a cruising speed of 169km/h. Most Super Cubs are used for agricultural purposes. More than 40,000 Cubs of all types have been delivered. *Country of origin:* USA. *Silhouette and picture:* Super Cub.

Confusion: Citabria

Aero Boero 95/115/180

Power: 1 × Continental or 1 × Lycoming piston engine *Span:* 10.42m *Length:* 6.90m



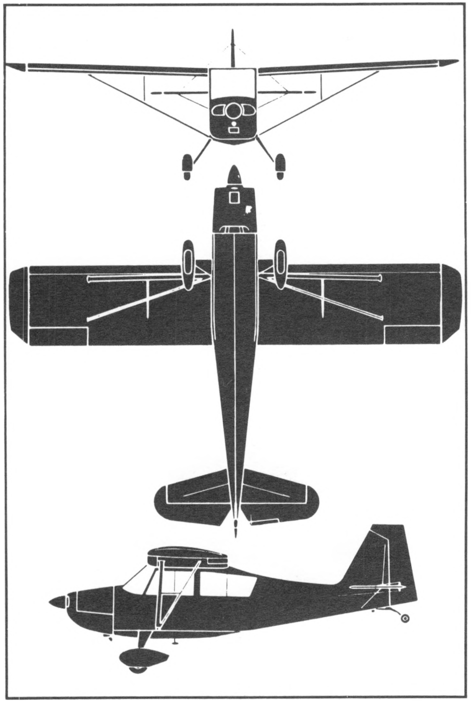


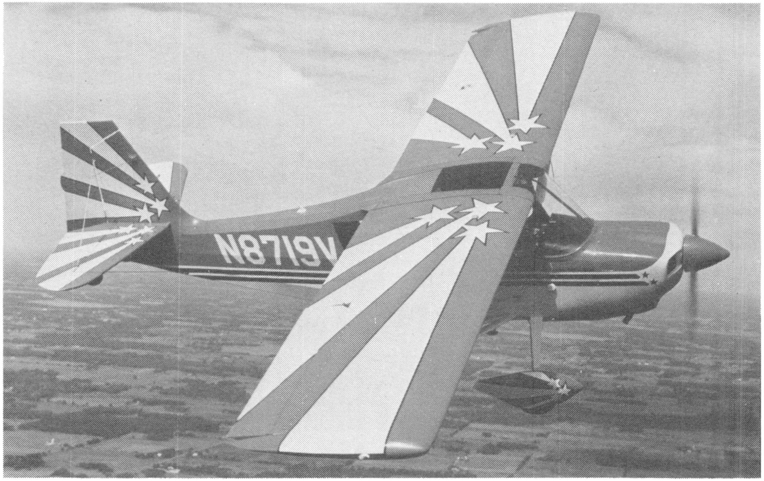
This family of three and four-seat light aircraft consists of some eleven different types: the basic AB 95 Standard with 95hp Continental; the AB 95A De Lujo with 100hp Continental; AB 95A Fumigador agricultural version; AB 95B with 150hp engine; AB 95/115 with 115hp engine, wheel fairings and streamlined engine cowling; AB 115 BS with swept-back fin and rudder; AB 180 four-seat version with 180hp Lycoming; AB 180 RV three-seat version with swept-back fin and rudder; AB 180 Condor high-altitude version. Two lower-powered versions of the AB 180, the AB 150 RV and the RB 150 Ag, have also been built. Orders have been placed by the Brazilian Government for 450 AB 115s. *Country of origin:* Argentina. *Silhouette:* AB 95/115. *Picture:* AB 180.

Bellanca Citabria/Scout/Decathlon

Confusion: Aero Boero 95/115/180

Power: 1 × Lycoming piston engine *Span:* (Citabria): 10.19m *Length:* (Citabria): 6.91m



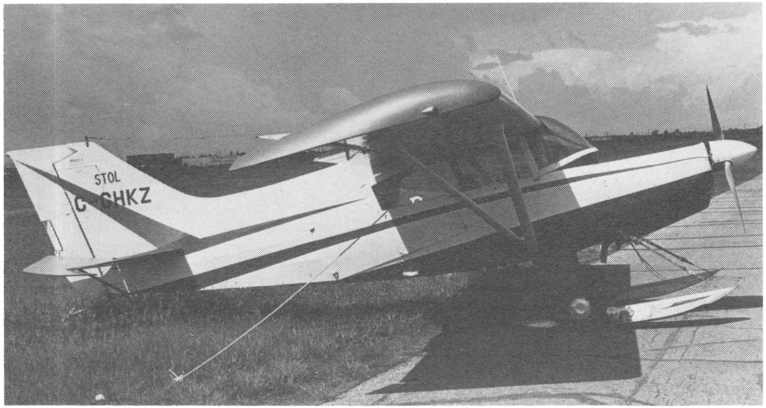


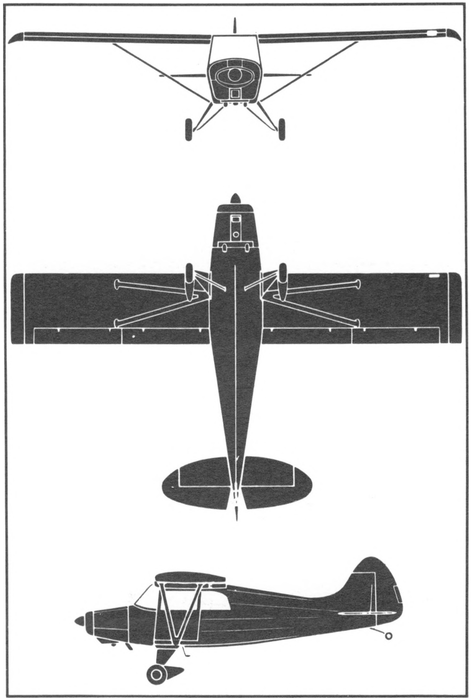
This series of high-wing light aircraft embraces several models of broadly similar appearance but widely differing powerplants and performances. Derived from the Aeronca Champion and Sedan light aircraft of the late 1940s, via the Champion Traveller and Challenger of the 1950s, current aircraft have a squared-off vertical tail and angular fuselage but retain the tandem seating of earlier aircraft. Three versions of the Citabria have been built. Production ceased in 1980. *Country of origin:* USA. *Silhouette:* Citabria. *Picture:* Decathlon.

Confusion: Citabria

Maule M-4 Rocket/M-5 Lunar Rocket

Power: 1 × Continental or 1 × Lycoming piston engine *Span:* 9.4m *Length:* 6.71m



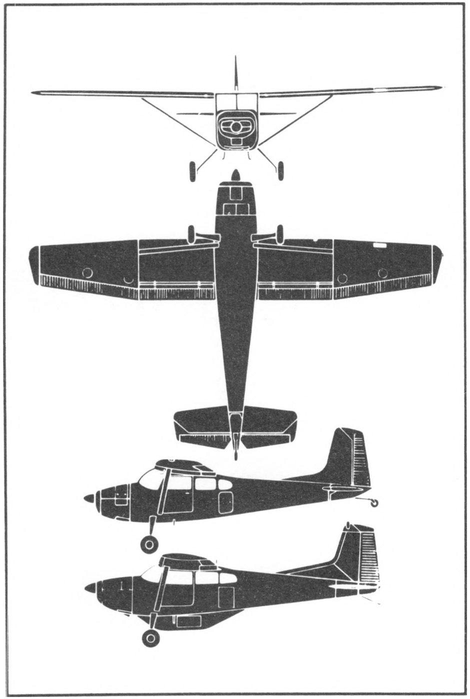


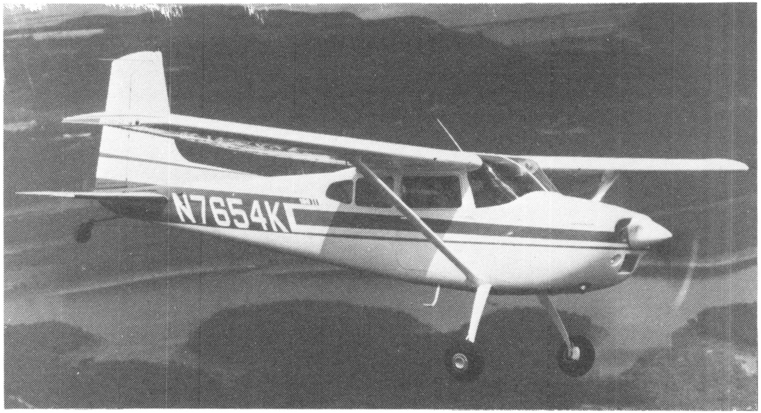
Production of the basic Maule M-4 began in 1963. This design was a conventional four-seat light aircraft with V-strut wing bracing and a rounded vertical tail. Four versions were available: the M-4 Astro-Rocket with 180hp Franklin engine; the M-4 Rocket with 210hp Continental, which was available also as a seaplane; and the M-4 Strato Rocket, generally similar to the Rocket but powered by a 220hp Franklin engine. The M-5 Lunar Rocket had 30% more flap area and enlarged tail surfaces. The five-seat M-6 Super Rocket was introduced in 1984. Powered by a 210hp Avco Lycoming, the M-5 cruises at 304km/h. Latest in the series are the MX-7 Star Rocket and the M-7-235 Super Rocket. Over 1,550 of all variants have been built. *Country of origin:* USA. *Silhouette:* M-4. *Picture:* M-5.

Cessna Model 180/Model 185 Skywagon

Confusion: Krishak, UTVA-60

Power: 1 × Continental piston engine *Span:* 10.92m *Length:* 7.85m



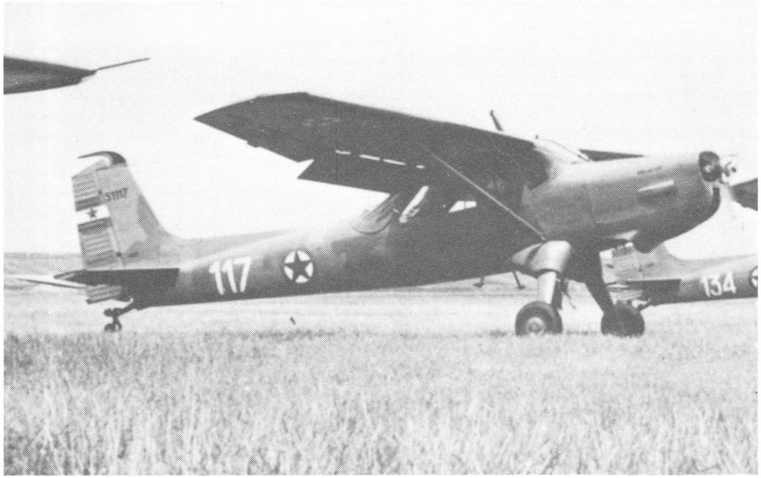


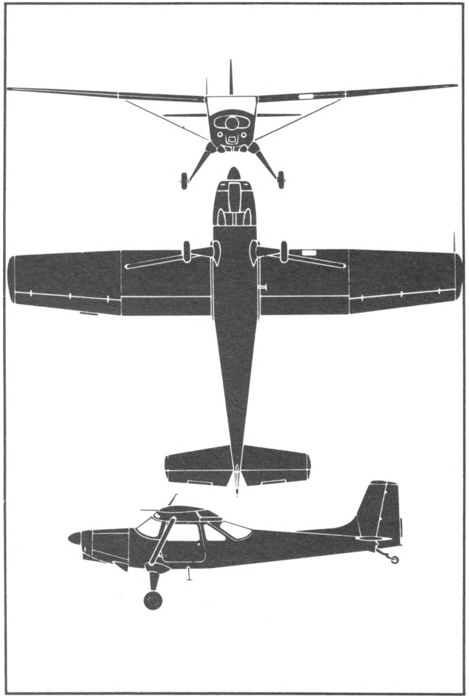
The Cessna Model 180 first flew in 1952 as a four-seater. Throughout its production life the type has retained the tailwheel undercarriage and the upright vertical tail. The Cessna 185 first flew in July 1960 and there were two versions: 185 Skywagon and the Model 185 Skywagon II, which included a factory-installed avionics package. The 185 is fitted with a 300hp Continental in place of the Model 180's 230hp unit. A military version, designated U-17 in the US, was also built. A total of 4,356 Model 185 Skywagons and U-17s had been built when production ceased in 1986. *Country of origin:* USA. *Main silhouette:* Model 180; *lower side view:* U-17. *Picture:* Model 180.

Confusion: Skywagon

UTVA UTVA-60/UTVA-66

Power: 1 × Lycoming piston engine *Span:* 11.4m *Length:* 8.38m



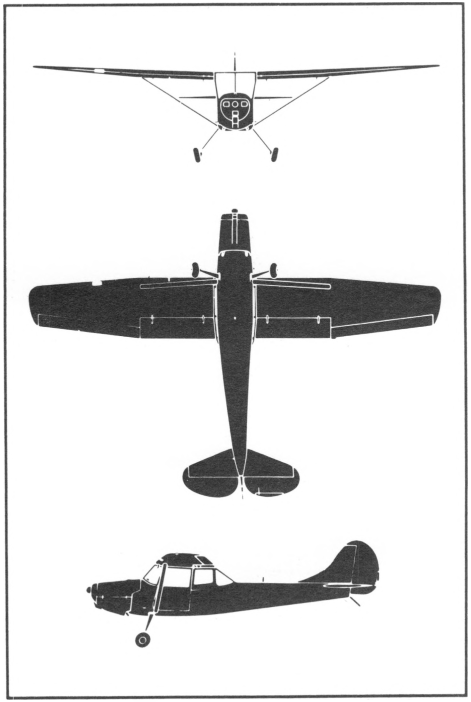


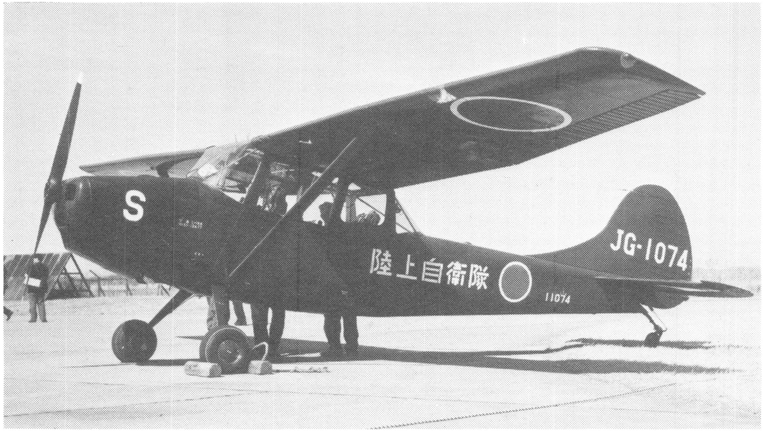
Derived from the UTVA-56 four-seat utility aircraft of 1959, the UTVA-60 is essentially the production version of the earlier aircraft. Five basic versions have been built, differing in the type of equipment carried for the various roles, which include light transport, air ambulance, agricultural spraying and float-plane. The UTVA-66 was developed from the UTVA-60 and first flew in 1967. Powered by a 270hp Lycoming engine, the UTVA-66 cruises at 230km/h. Some 45 are in service with the Yugoslav Air Force. *Country of origin:* Yugoslavia. *Silhouette:* UTVA-60. *Picture:* UTVA-66.

Cessna O-1 Bird Dog

Confusion: SM.1019

Power: 1 × Continental piston engine *Span:* 10.97m *Length:* 7.89m



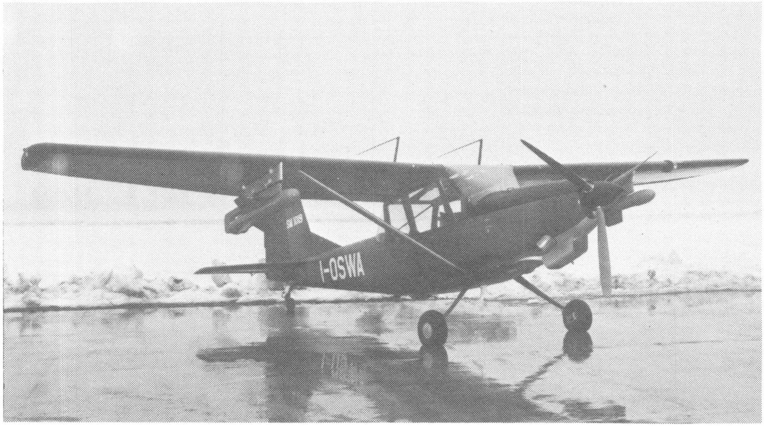


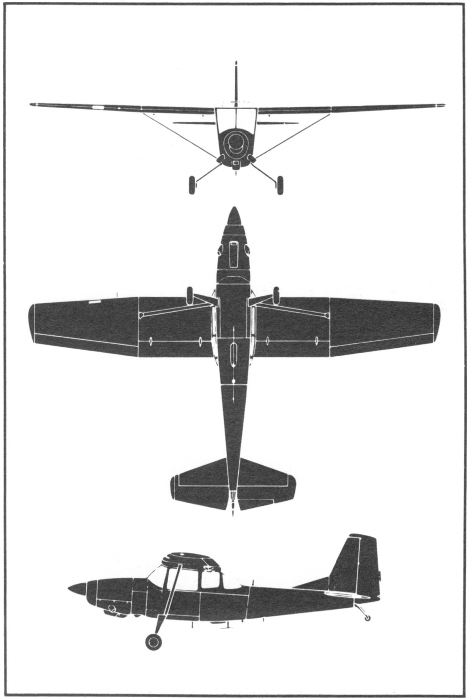
The Bird Dog was developed for the US Army as a light reconnaissance and observation aircraft which could also be used for liaison and training duties. It first flew in 1950 and remained in continuous production until late 1958, by which time more than 3,300 had been built. It briefly re-entered production in 1962 and a further 100 were built. The type is still in operational service in many countries throughout the world. The Bird Dog has a tailwheel undercarriage and nearly all variants have the characteristic rounded fin and rudder. The exception is the O-1C, some 25 of which were built for the US Marine Corps, which has the old-style squared-off tail of the early Cessna 180s and 185s. *Country of origin:* USA.

Confusion: Bird Dog, AM-3C

SIAI-Marchetti SM.1019E

Power: 1 × Allison turboprop *Span:* 10.97m *Length:* 8.52m

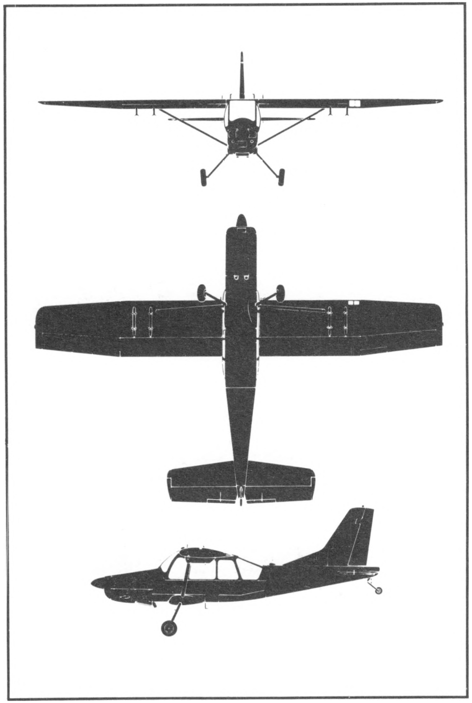


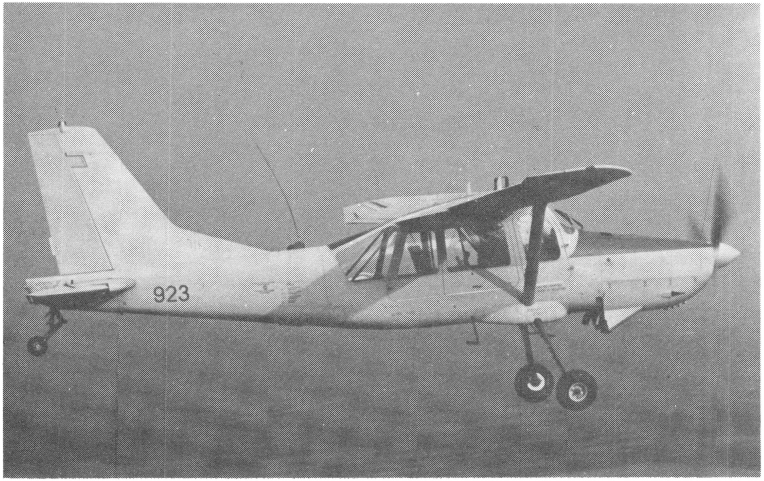


This tandem two-seat STOL light aircraft is based on the Cessna O-1 Bird Dog but has an extensively modified airframe to meet later operational requirements. First flown in 1969, it was put into production for the Italian Army, powered by a 400hp Allison 250-B17 turboprop. Total order was for 100 aircraft. The SM.1019E is stressed for two underwing hardpoints and can carry a variety of operational equipment. Cruising speed is 300km/h. Other performance figures include a maximum rate of climb at sea level of 551m/min; operational ceiling of 7,620m; and a typical operational radius with two rocket launchers of 111km. *Country of origin:* Italy.

Aeritalia AM-3C *Confusion:* SM.1019

Power: 1 × Piaggio/Lycoming piston engine *Span:* 12.64m *Length:* 8.93m



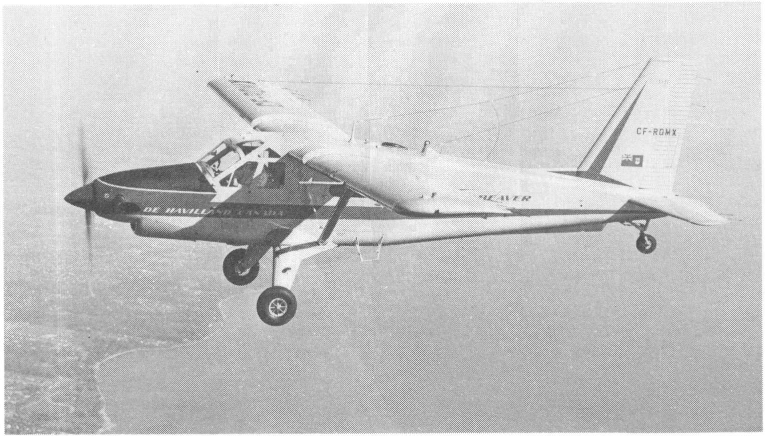


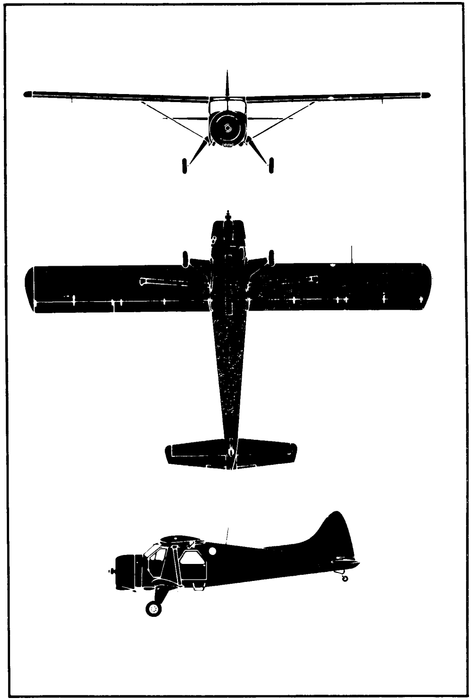
The three/four-seat AM.3C was originally designated MB.335 and first flew in 1967. Suitable for forward air control, observation, liaison, passenger and freight transport, casualty evacuation and tactical support, the type has been built in quantity for the Rwanda Air Force and the South African Air Force, in which service it is known as the Bosbok. The AM-3C is stressed to carry a variety of armaments on two underwing pylons. Powered by a Piaggio-built 340hp Lycoming, the AM-3C cruises at 245km/h. *Country of origin:* Italy.

Confusion: Otter, Do 27

DH DHC-2 Beaver

Power: 1 × R-985 piston engine or/1 × PT6A turboprop *Span:* 14.64m *Length:* 9.24m



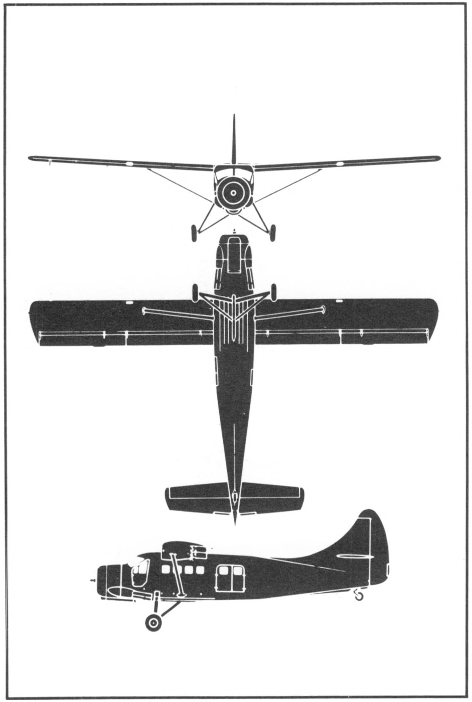


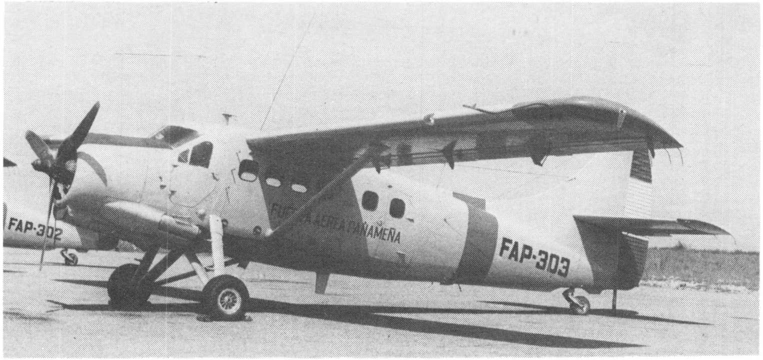
Nearly 1,700 DHC-2 Beaver light utility transports were built, the first flying in 1947. Carrying either seven passengers or freight, the Beaver has proved capable of operating in very rough, remote areas. The Beaver Mk I was produced in both civil and military forms, some 968 of the latter variant going to the US Army/USAF as the U-6A. Beavers have been fitted with floats and skis. A later development is the Turbo-Beaver Mk III, which has the Pratt & Whitney radial engine replaced by a PT6A turboprop. This changes the nose shape significantly. The Mk III can carry 10 passengers, cruises at 252km/h and has a range of 1,090km. *Country of origin:* Canada. *Silhouette:* Mk I. *Picture:* Mk III.

DH DHC-3 Otter

Confusion: Beaver

Power: 1 × R-1340 piston engine *Span:* 17.69m *Length:* 12.80m



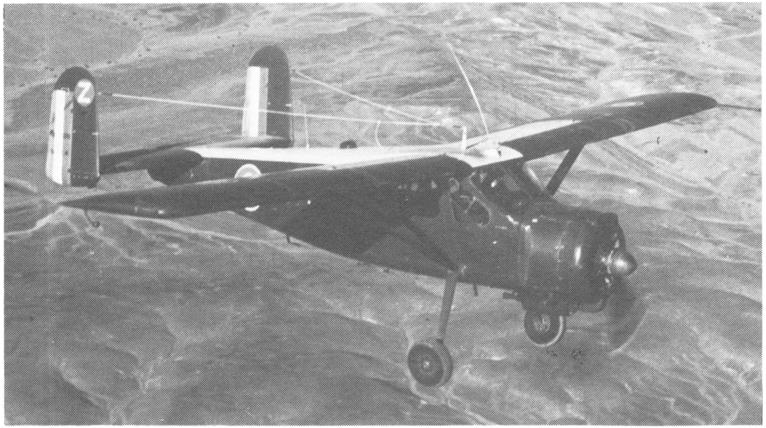


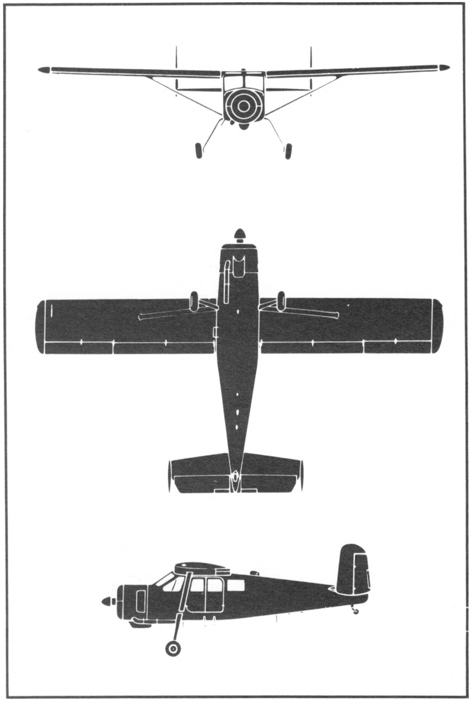
First flown in 1951, the 10-seat Otter was extensively used by the armed forces of USA, Canada, Australia, Ghana and India, and in smaller numbers by several South American nations. The Otter can be fitted with floats and skis, and has been used in Antarctica. Powered by a 600hp Pratt & Whitney radial engine, the Otter has a cruising speed of 209km/h and a maximum level speed of 257km/h. A turboprop conversion of the Otter, powered by a single Pratt & Whitney Aircraft of Canada PT6A-27, has been produced by Cox Air Resources of Edmonton, Canada. Airtech Canada has converted eight Otters to take higher rated Polish PZL radial engines. Some piston-engined Otters are still in service. *Country of origin:* Canada.

Confusion: Beaver

Max Holste Broussard

Power: 1 × R-985 piston engine *Span:* 13.75m *Length:* 8.65m



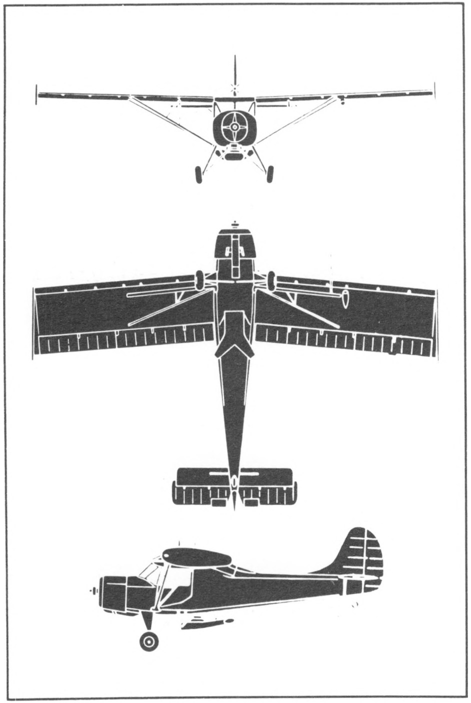


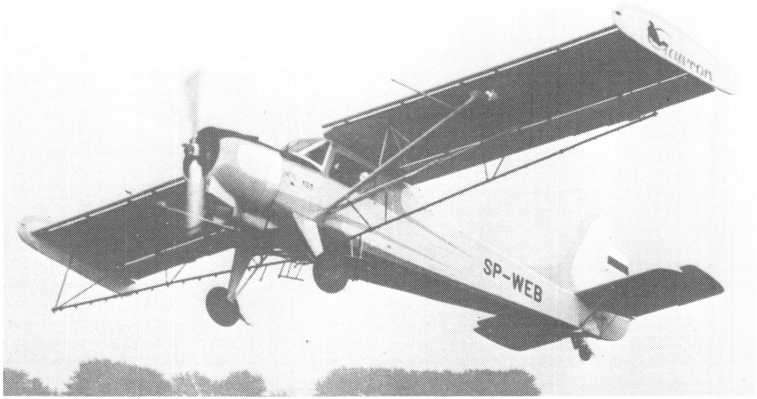
The twin-finned Broussard light utility aircraft was developed from the MH 152 experimental observation type and first flew in 1952. Production aircraft were designated MH 1521 and MH 1521A. Total production of the Broussard exceeded 330 aircraft. A total of 10 remain in military service with Cameroon, Chad, Mauritania and Senegambia. A small number are civilian registered. Powered by a 450hp Pratt & Whitney Wasp radial, the Broussard cruises at 245km/h and has a maximum range of 1,200km. *Country of origin:* France. *Silhouette and picture:* MH 1521.

WSK-Okecie PZL-101A Gawron

Confusion: Beaver

Power: 1 × AI-14R piston engine *Span:* 12.68m *Length:* 9m



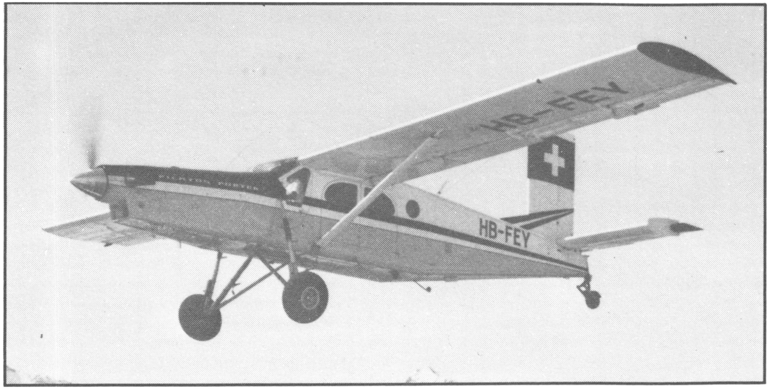


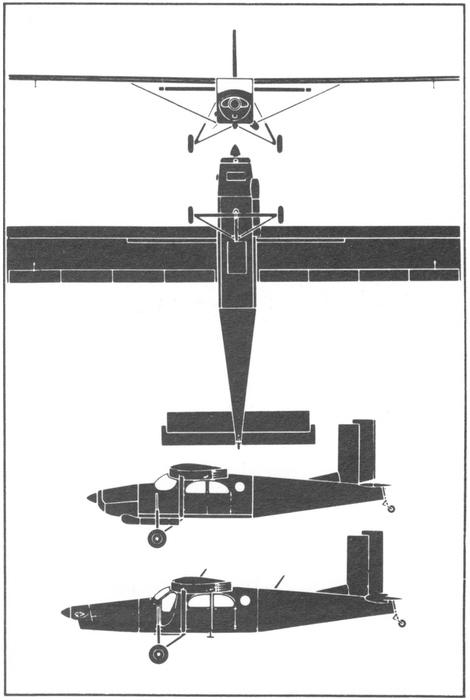
The PZL-101A Gawron (Rook) single-engined agricultural, ambulance and utility light aircraft was developed from the Russian Yak-12M and first flew in 1958. From 1961 the type was approved by a number of Eastern bloc countries as their standard agricultural aircraft and more than 330 had been built when production ended in 1973. The Gawron has also been sold in Austria, Finland, India, Spain, Turkey and Vietnam. The aircraft is conventional in all major respects, with V-braced high wing and braced tail assembly. Powered by a 260hp AI-14R nine-cylinder radial engine, the Gawron cruises at 130km/h. *Country of origin:* Poland.

Confusion: Wilga

Pilatus/Fairchild PC-6 Porter

Power: 1 × Lycoming piston engine or 1 × Astazou or PT6 turboprop *Span:* 15.14m *Length:* 11.23m



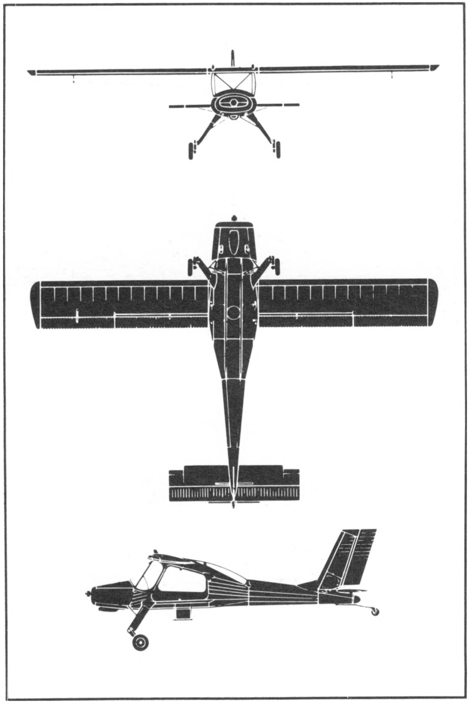


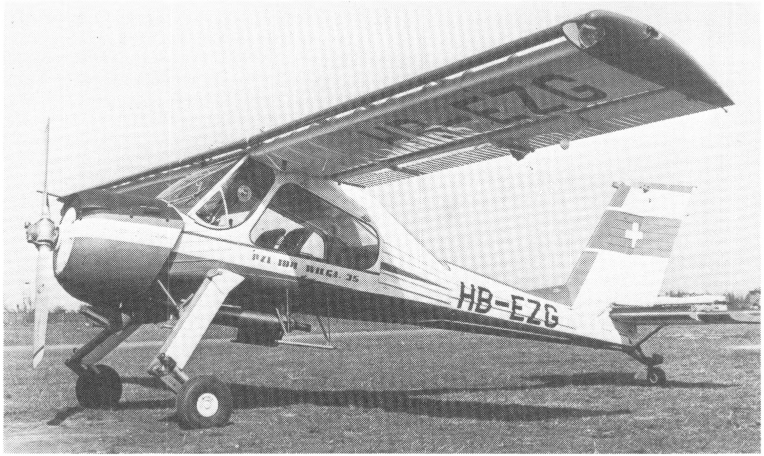
The piston-engined Pilatus Porter STOL utility aircraft was first flown in 1959. The Turbo-Porter first flew in 1961 and several variants have been built. Current production version is the PC-6/B-2-H4 Turbo-Porter, powered by a 680shp Pratt & Whitney PT6A turboprop. The type was also manufactured under licence in the USA by Fairchild Industries, the first US-built aircraft flying in 1966. A militarised version with underwing hardpoints is called the AU-23A Peacemaker. The US Army designation for the Turbo-Porter is the UV-20A Chiricahua. By early 1988 more than 480 PC-6s of all types had been ordered by operators in over 50 countries. *Countries of origin:* Switzerland/USA. *Main silhouette:* Porter; *lower side view:* Turbo-Porter. *Picture:* Turbo-Porter.

PZL-Warszawa PZL-104 Wilga

Confusion: Porter

Power: 1 × Ivchenko piston engine *Span:* 11.12m *Length:* 8.1m

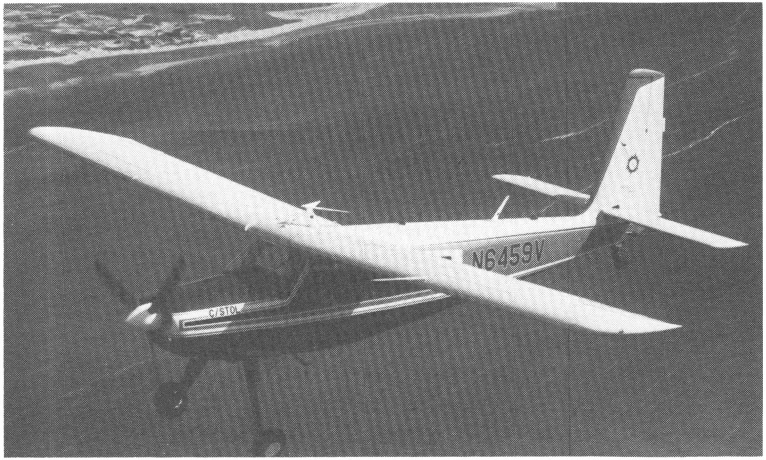


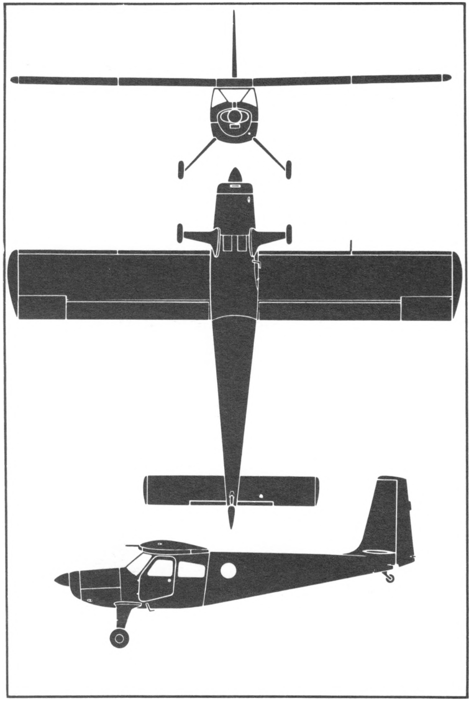


The Wilga (Thrush) was designed as a successor to the Czechoslovak L-60 Brigadyr in the agricultural role and first flew in 1962 as the Wilga 1. The design was modified in 1967 and designated the Wilga 35. Current production versions are the Wilga 35A for club flying, the Wilga 35P light transport, the agricultural 35R and the float-equipped 35H. The Wilga 80, identified by a carburettor intake mounted further aft, conforms to US requirements. More than 900 Wilgas have been built. An extended range project is the Wilga 35M. *Country of origin:* Poland. *Silhouette:* Wilga 2. *Picture:* Wilga 35.

Helio Super Courier/Trigear Courier

Power: 1 × Lycoming piston engine *Span:* 11.89m *Length:* 9.45m



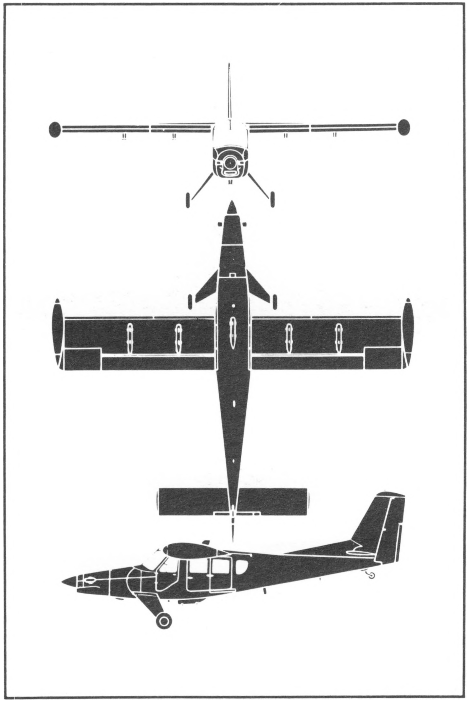


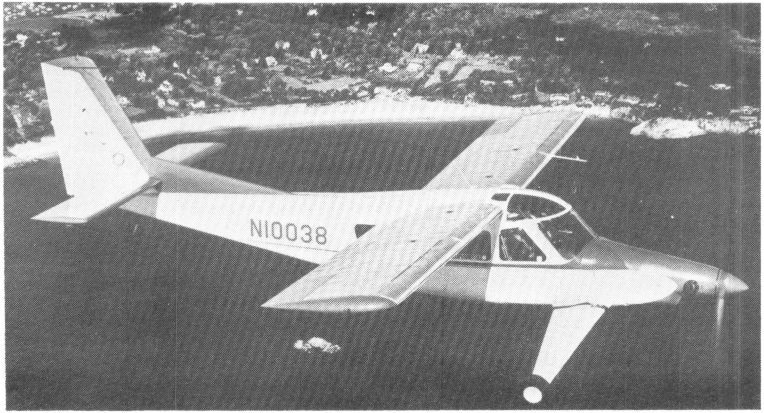
Evolved from the two-seat Koppen-Bollinger Helioplane, which first flew in 1949, the original Courier appeared in 1952. The main production version was the H-295 Super Courier, which made its maiden flight in 1958. Last production versions were the six-seat Courier 700 and the more powerful Courier 800. Both were available with wheel, amphibious float or ski undercarriages. All versions have an unbraced cantilever wing and characteristic tall fin. Powered by a 295hp Lycoming, the H-295 has a cruising speed of 241km/h. *Country of origin:* USA. *Silhouette and picture:* H-295.

Helio AU-24A Stallion

Confusion: Super Courier

Power: 1 × PT6A turboprop *Span:* 12.5m *Length:* 12m

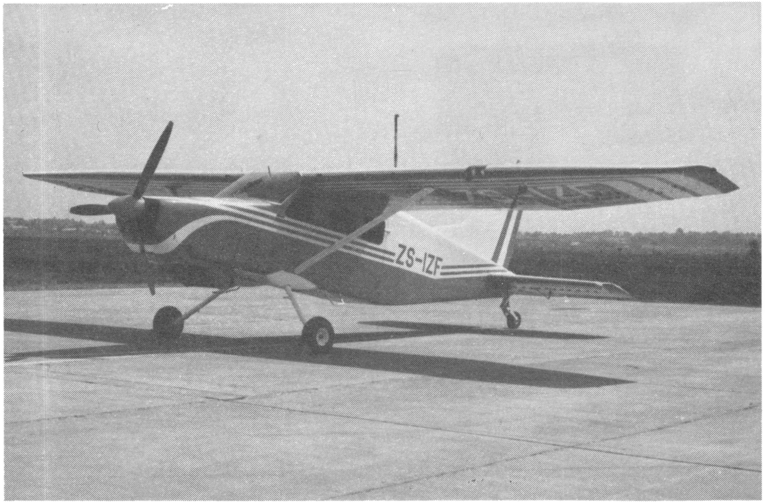


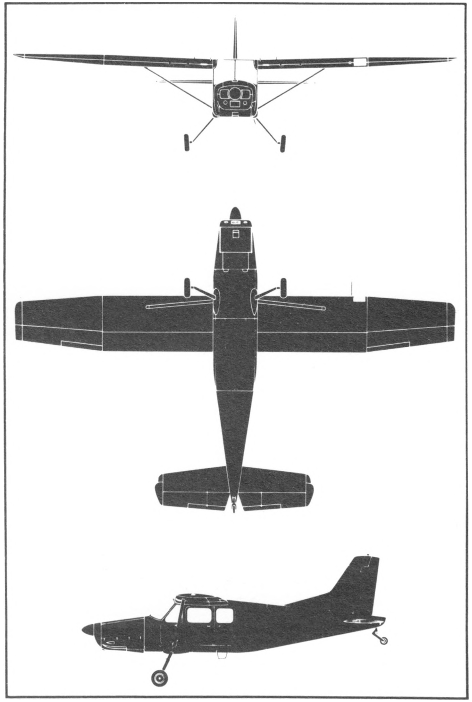


Designed as a successor to the Helio Super Courier, the turboprop Stallion first flew in 1964 and has been developed in both civil and military versions. The civil version can carry up to 10 people in a high-density layout or up to six passengers in individual seats. The US Air Force acquired 15 of an armed version designated AU-24, 14 of which were subsequently supplied to the Khmer Air Force. The Stallion is easily recognisable by its swept-back main undercarriage legs and long nose accommodating the 680shp Pratt & Whitney PT6A turboprop. Cruising speed is 319km/h. A total of 600 Couriers, Super Couriers and Stallions were built. *Country of origin:* USA. *Silhouette:* AU-24. *Picture:* Model H-600B.

Atlas C4M Kudu

Power: 1 × Lycoming piston engine *Span:* 13.08m *Length:* 9.31m



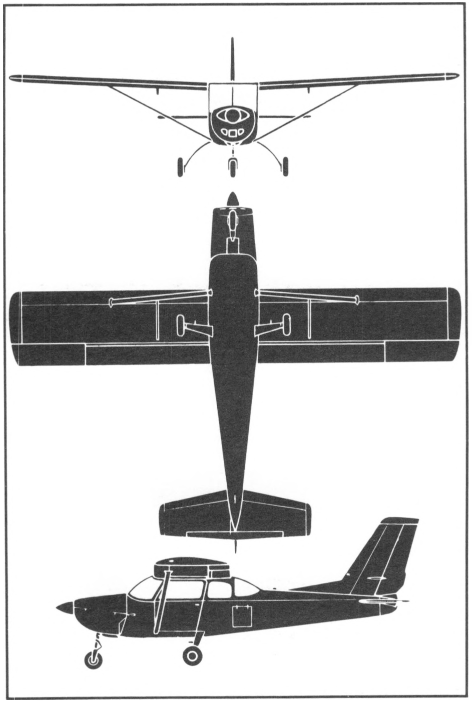


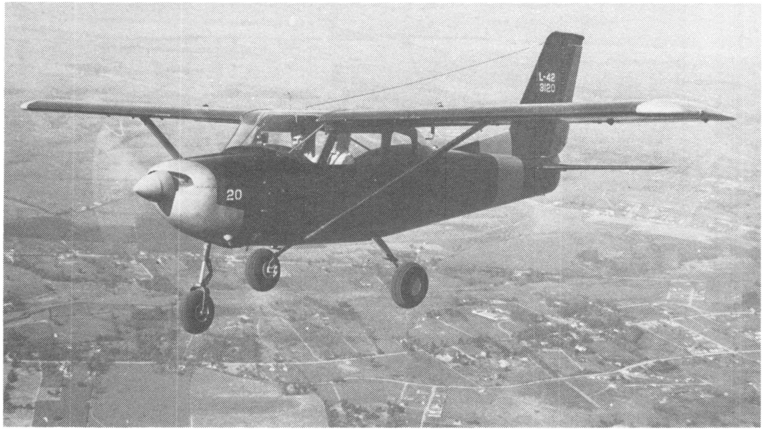
The C4M Kudu is a six/eight-seat light transport which is capable of operating from unprepared surfaces. The type first flew in 1974. The first military prototype flew in 1975 and some 35 are believed to be in service. The type is a development of the Aermacchi-Lockheed AL.60 Conestoga, which was built in both tricycle and tailwheel forms. The Kudu cruises at 200km/h and is in civil and military use in South Africa. Aermacchi also exported the type as the AL.60 Trojan. *Country of origin:* South Africa. *Silhouette and picture:* Kudu.

Neiva L-42 Regente

Confusion: Oscar

Power: 1 × Continental piston engine *Span:* 9.13m *Length:* 7.04m



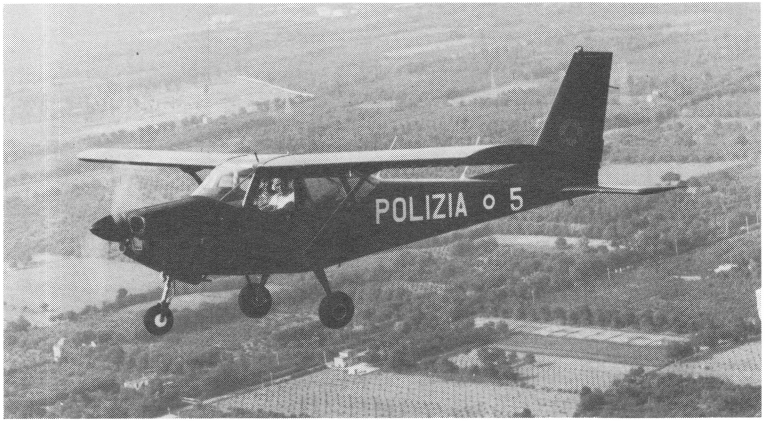


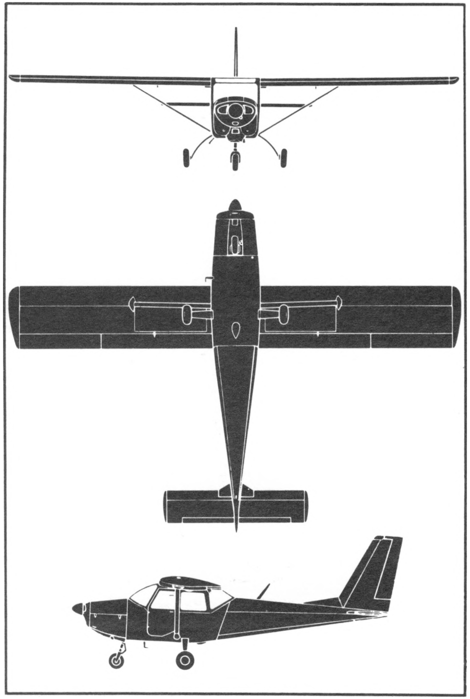
The four-seat Regente was first flown in 1961 and entered service with the Brazilian Air Force in 1963. Two versions have been built: the Regente 360C, designated C-42 in Brazilian Air Force service; and the Regente 420L, designated L-42 by the BAF. Main difference between the two is that the L-42 has a stepped-down cabin rear window for improved all-round visibility. When production ended in 1971, 80 C-42s and 40 L-42s had been built. Powered by a 210hp Continental, the L-42 cruises at 236km/h. The company also developed a civil version of the Regente, the Lanceiro, which first flew in 1970 but did not enter full-scale production. *Country of origin:* Brazil. *Silhouette and picture:* L-42.

Confusion: Regente

Partenavia P.64 Oscar/P.66 Oscar/P.66C-160 Charlie

Power: 1 × Lycoming piston engine *Span:* 9.99m *Length:* 7.23m



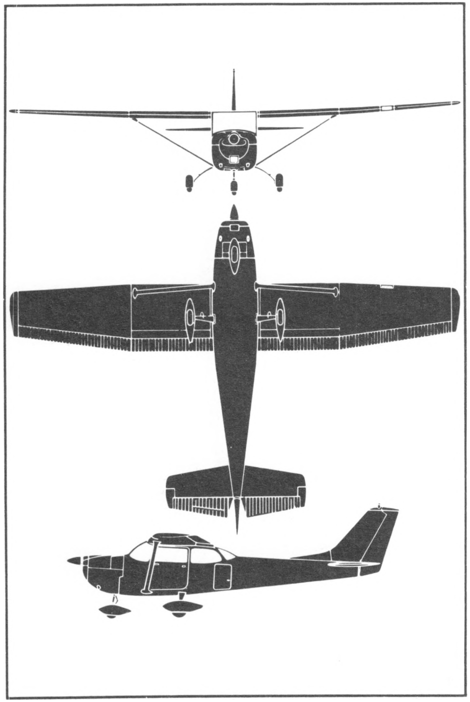


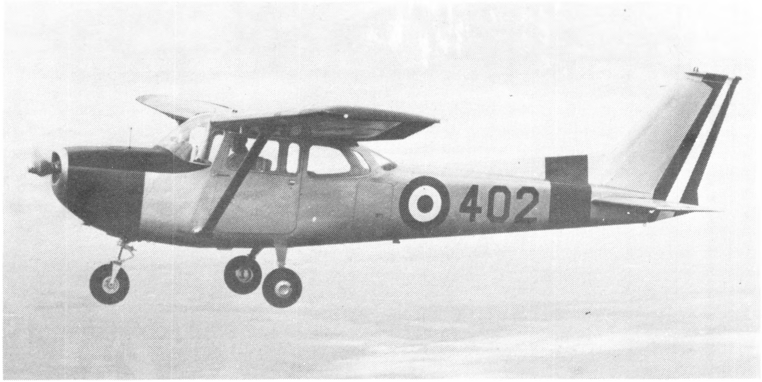
The four-seat P.64 Oscar was first flown in 1965, powered by a 180hp Lycoming engine. The following year saw the introduction of an improved version with cut-down rear fuselage decking to improve all-round visibility. A small number of aircraft were built by AFIC in South Africa as the RSA 200 Falcon. The P.66B Oscar 100 and Oscar 150 are two- and three-seat developments of the P.64. In 1976 the P-66C-160 Charlie was introduced. Powered by a 160hp Lycoming, the P-66C-160 cruises at 216km/h. *Country of origin:* Italy. *Silhouette:* P.64. *Picture:* P.66C-160 Charlie.

Cessna Model 172 Skyhawk/T-41 Mescalero

Confusion: Airedale

Power: 1 × Lycoming or 1 × Continental piston engine *Span:* 10.92m *Length:* 8.2m

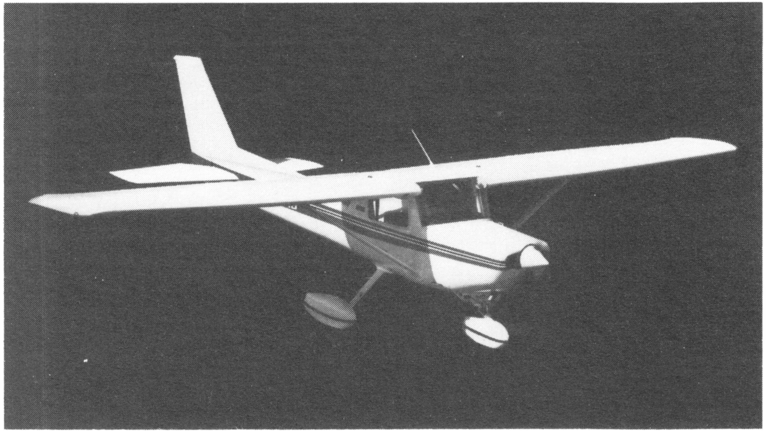


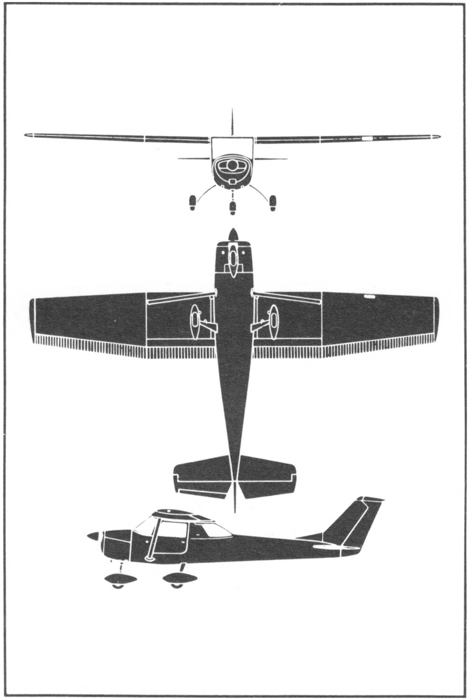


First introduced in 1955, the Model 172 was essentially a Model 170 with tricycle undercarriage and revised tail surfaces. The swept-tail 172A was introduced in 1960. Current versions are powered by a 160hp engine giving a cruising speed of about 225km/h. The Model 172E is a more powerful version with a 210hp Continental. Known in the US Army and Air Force as the T-41 Mescalero, the type is used for basic training. It has also been bought by a few South American air forces. Top of the line is the Model R-172 Hawk XP, which was also produced in France by Reims Aviation. Power is provided by a 195hp Continental. 35,773 Model 172 Skyhawks had been produced by the end of 1987, including 2,144 French-built F172s. In addition 864 military Mescaleros were built. *Country of origin:* USA. *Silhouette:* Skyhawk. *Picture:* T-41.

Cessna Model 150/152 Aerobat

Power: 1 × Continental or 1 × Lycoming piston engine *Span:* 9.97m *Length:* 7.34m



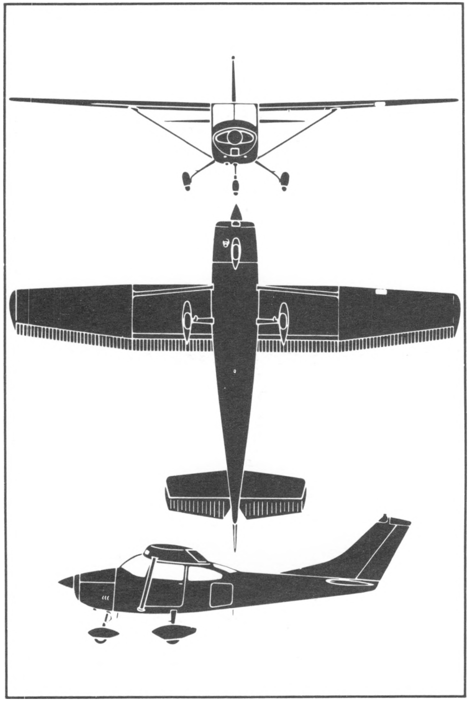


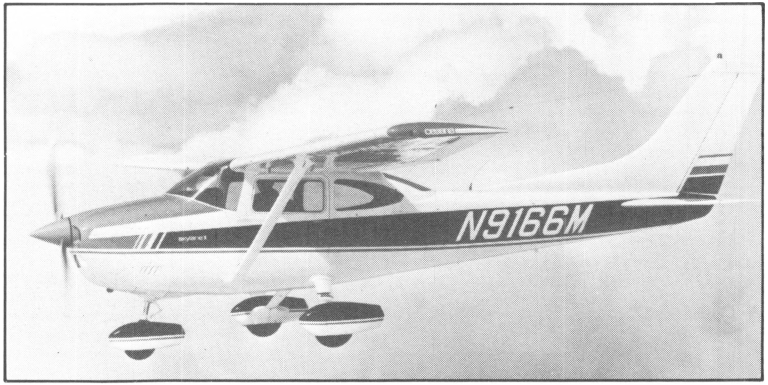
This two-seater, first flown in 1957, was intended as a successor to Cessna's earlier tailwheel Models 120 and 140. Several versions of the 150 have been built, the first major change being the introduction of the swept-tail Model 150F in 1966. Production of the basic aircraft ended in 1977 after almost 24,000 had been built, including 1,500 in France by Reims Aviation. Last production was the Model 152, which has a more powerful engine than the Model 150 but is otherwise externally similar. The Model 152 Aerobat has certain interior modifications as well as some structural beefing-up to permit simple aerobatics. Maximum cruising speed is 188km/h. *Country of origin:* USA. *Silhouette:* Model 150F. *Picture:* Model 152.

Cessna Model 182 Skylane/Rocket

Confusion: Aerobat

Power: 1 × Continental or 1 × Lycoming piston engine *Span:* 10.92m *Length:* 8.57m



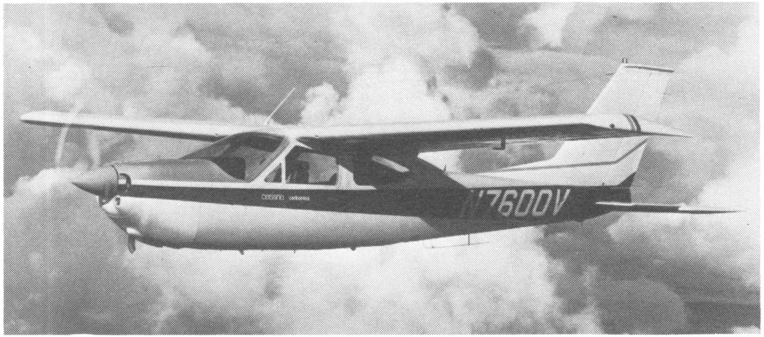


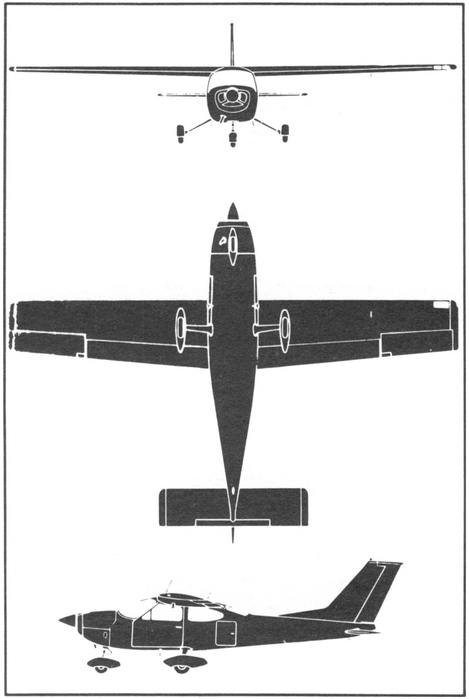
Derived from the Model 180 utility light aircraft, the Model 182 was introduced in 1956. The swept tail was introduced on 1,960 aircraft. Production of the Model 182 was discontinued in 1976 and current production aircraft are the standard Skylane and Skylane II; the latter embodies a factory-installed avionics package. In 1977 Cessna introduced a new retractable-undercarriage version designated Skylane RG (and the Skylane RG II with factory-installed avionics). The RG aircraft were also fitted with the more powerful 235hp Lycoming engine. Total production of all variants exceeded 19,800, including a number built in France by Reims Aviation as the Rocket. Cruising speed is 253km/h. Retractable-undercarriage versions are known as the Skylane RG and Turbo-Skylane RG. *Country of origin:* USA. *Silhouette:* Model 182G. *Picture:* Skylane II.

Confusion: Skylane

Cessna Cardinal/Cardinal RG

Power: 1 × Lycoming piston engine *Span:* 10.82m *Length:* 8.31m



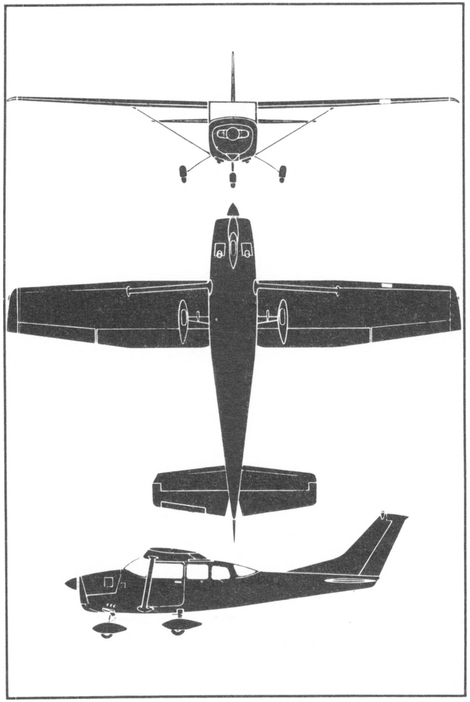


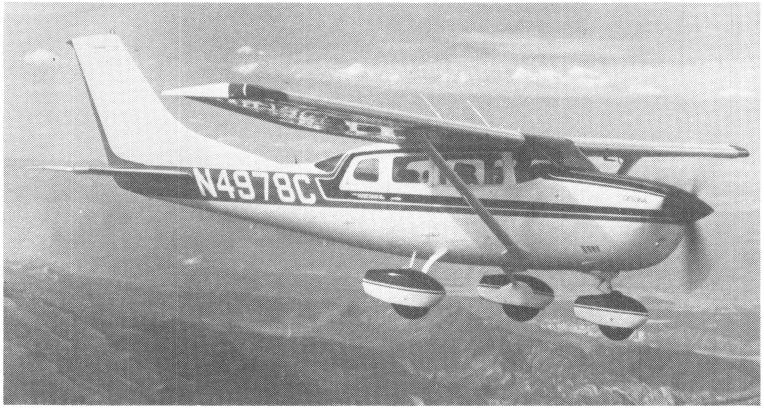
The original Model 177 four-seat light aircraft, introduced in 1967, was powered by a 150hp engine, later increased to 180hp. The 1978 aircraft were re-designated Cardinal Classic and incorporated many improvements to cabin comfort and basic equipment. The Cardinal RG series was introduced in 1970 and featured hydraulically retractable undercarriage and 200hp Lycoming engine. Cruising speed of the Cardinal Classic is 241km/h and that of the Cardinal RG 273km/h. Other performance figures for the RG include a maximum sea-level speed of 290km/h; and economical cruising speed at 3,050m of 233km/h. *Country of origin:* USA. *Silhouette:* Cardinal. *Picture:* Cardinal RG II.

Cessna Stationair 6

Confusion: Stationair 7, Centurion

Power: 1 × Continental piston engine *Span:* 10.92m *Length:* 8.61m

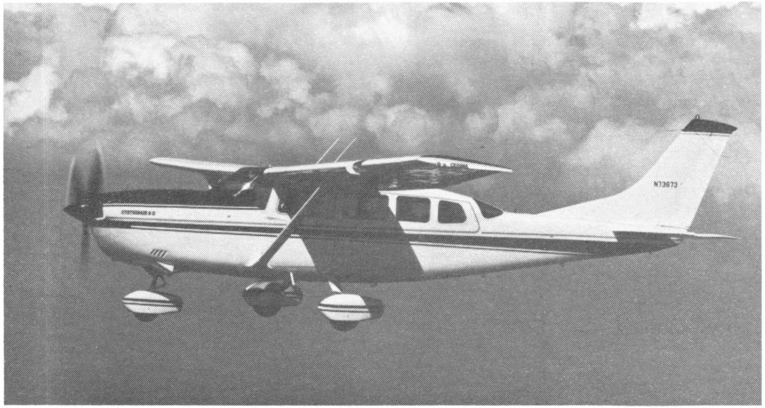


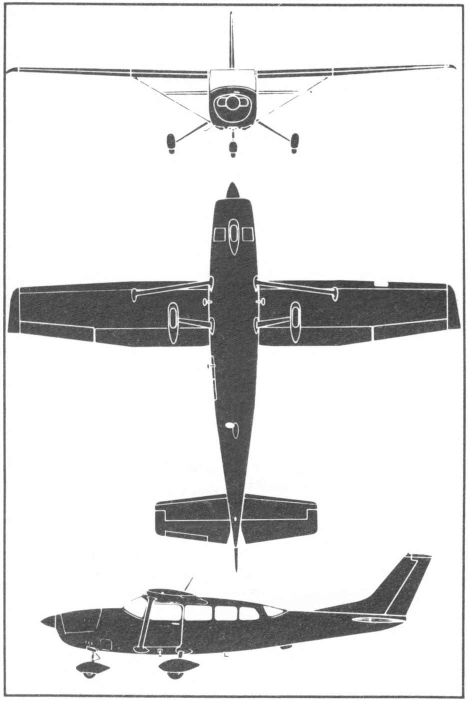


This six-seat light aircraft was introduced in 1962 as the Model 205 powered by a 285hp Continental engine. In 1964 this was superseded by the Model 206 Super Skywagon with more powerful engine and double cargo doors on the starboard side. The aircraft has since been renamed Stationair and Turbo-Stationair. In 1978 aircraft were designated Stationair 6 and Turbo-Stationair 6, fitted with the 300hp Continental and 310hp turbocharged Continental respectively. The line also includes the de luxe Super Skylane, and a utility version with a single seat and no wheel fairings. In USAF service the Turbo-Stationair is designated U-26A. By the end of 1987, when production ceased, 7,652 Skywagons and Stationairs had been built. *Country of origin:* USA. *Silhouette:* Stationair. *Picture:* Stationair 6.

Cessna Stationair 7/Stationair 8

Power: 1 × Continental piston engine *Span:* 10.92m *Length:* 9.68m



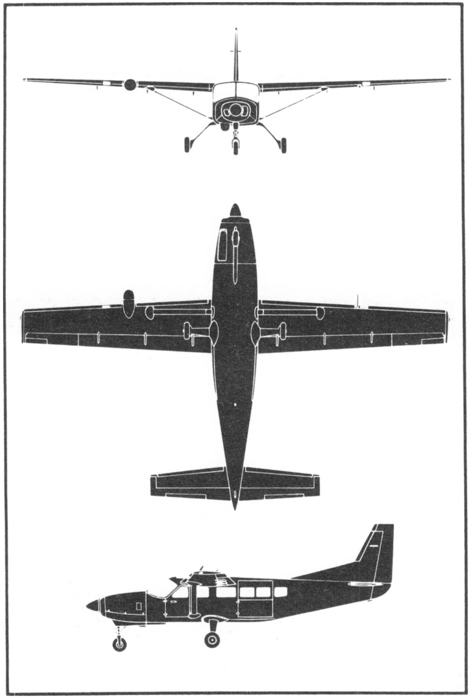


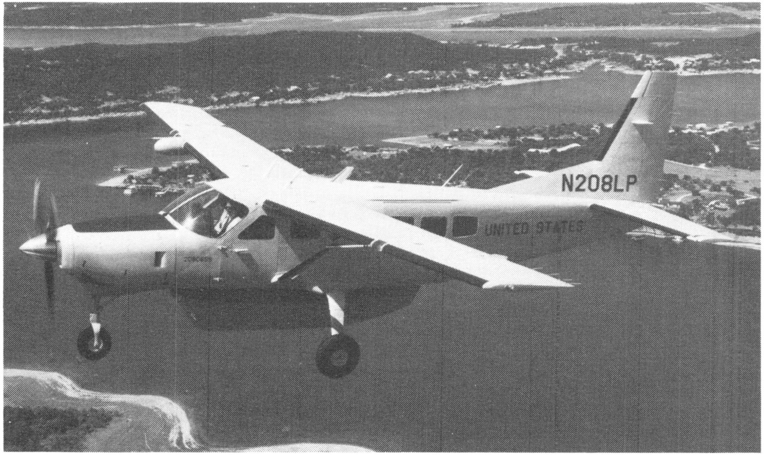
This seven-seat utility aircraft, first announced in 1969, is a stretched version of the Model 206 Super Skywagon. In addition to the longer fuselage, new features included a door for the co-pilot on the starboard side and a separate baggage compartment forward of the cabin. The basic aircraft is powered by a 300hp Continental and cruises at 265km/h, while the turbocharged aircraft with a 310hp Continental cruises at 297km/h. Production of Model 207s had exceeded 360 by early 1977. The designation was changed to Stationair 7 and Turbo-Stationair 7 for the 1978 aircraft. In 1980 production switched to the eight-seat, slightly longer Stationair 8/Turbo Stationair 8. *Country of origin:* USA. *Silhouette:* Skywagon 207. *Picture:* Stationair 8.

Cessna 208 Caravan 1

Confusion: Stationair 7/8

Power: 1 × PT6A turboprop *Span:* 15.8m *Length:* 11.46m



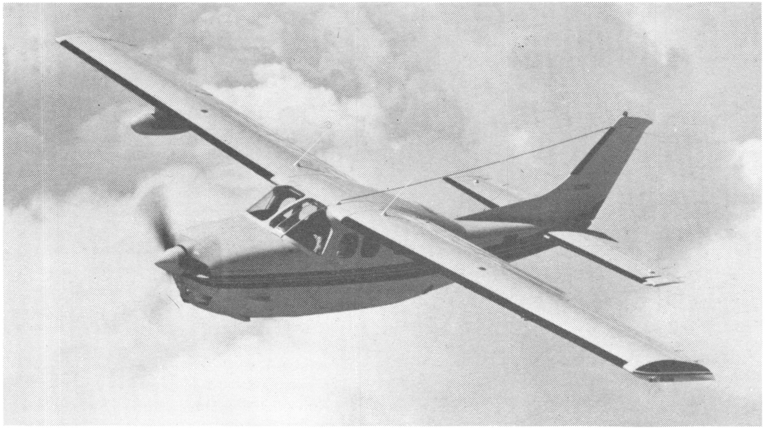


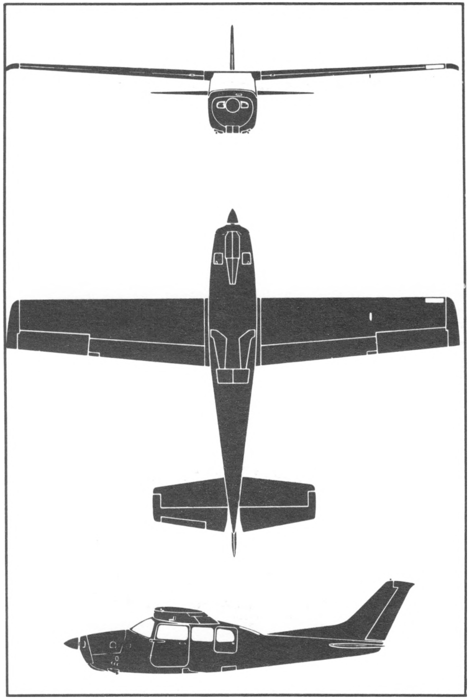
The turboprop Model 208 Caravan 1 was a completely new Cessna design first flown in December 1982. Intended to serve as a transport from unprepared strips, the Caravan can carry up to 13 passengers. Wheel, ski and float undercarriages are available and the Caravan is also designed to perform a variety of military and civilian utility duties. A military derivative is the U-27A. The freighter version, 208A, carries a large underfuselage pannier and has no windows. A stretched freighter is the 208B. By end 1990, 438 Caravan 1s had been delivered. Maximum cruising speed is 342km/h. *Country of origin:* USA. *Silhouette:* Caravan 1. *Picture:* UH-27A.

Confusion: Stationair 6/7

Cessna Model 210/Centurion

Power: 1 × Continental piston engine *Span:* 11.2m *Length:* 8.59m



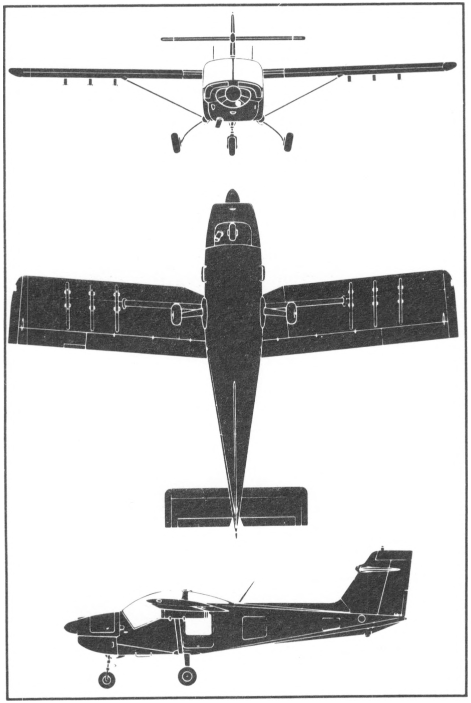


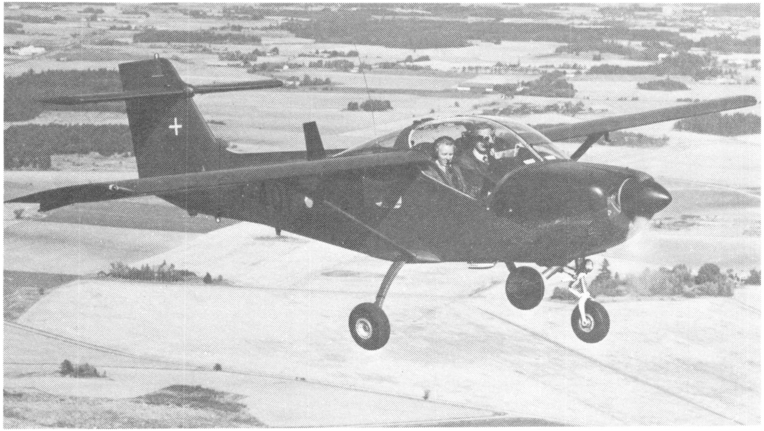
The original Model 210 first flew in 1957 and was the first of the Cessna high-wing range of light aircraft to feature a retractable undercarriage. Later versions also featured an unbraced cantilever wing, as on the Cardinal series. Successive models have introduced enlarged cabin windows. The T210 is now known as Turbo Centurion with two additional rear windows and increased cabin headroom. In late 1977 Cessna introduced the Pressurised Centurion, generally similar to the standard aircraft but powered by a 310hp Continental engine and with four small windows on each side in place of the panoramic windows. Maximum cruising speed is 303km/h. *Country of origin:* USA. *Silhouette:* Model 210H. *Picture:* Pressurised Centurion.

Saab/Safari/Supporter

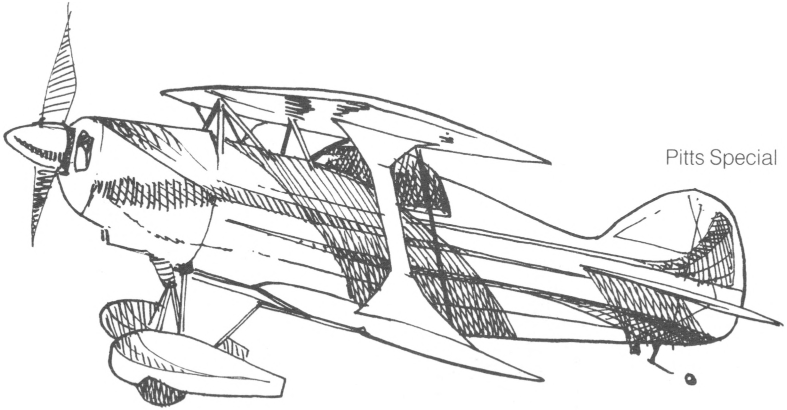
Confusion: Junior

Power: 1 × Lycoming piston engine *Span:* 8.85m *Length:* 7m

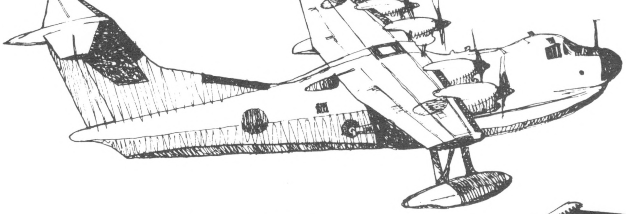




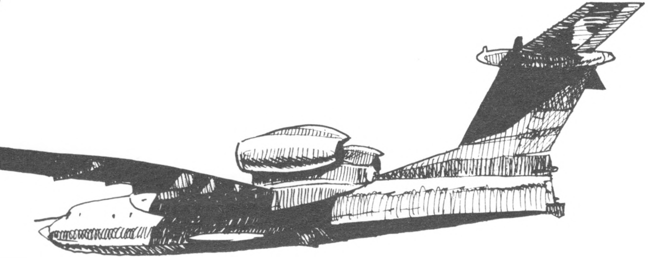
The two-seat Saab Safari (formerly known as the MFI-15) basic trainer and utility aircraft first flew in 1969, powered by a 160hp engine. Originally flown with a low-set tailplane, the type was refitted with a near T-tail. Although designed with a tricycle undercarriage, the type may be seen with an optional tailwheel arrangement. A military version is also available, known as the Supporter. Externally similar to the Safari, the Supporter is stressed to carry stores on six underwing stations. Supporters have been delivered to Denmark, Pakistan and Zambia and the type has been built in Pakistan as the MFI-17 Mushak. Powered by a 200hp Lycoming, both versions cruise at 210km/h. *Country of origin:* Sweden. *Silhouette and picture:* Supporter.



Pitts Special



Shin Meiwa PS-1

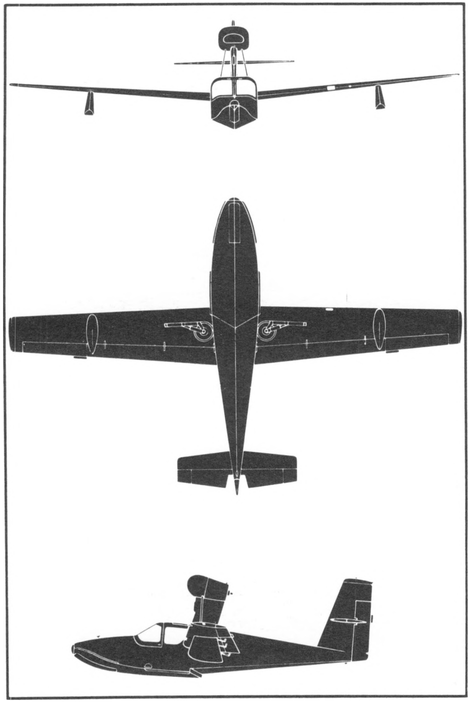


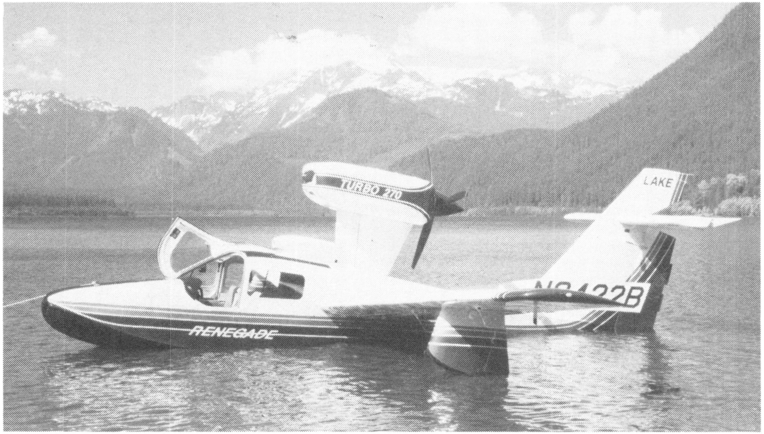
Beriev Be-42

Lake LA4 Buccaneer/LA-250 Renegade

Confusion: Teal

Power: 1 × Lycoming piston engine *Span:* 11.58m *Length:* 7.6m



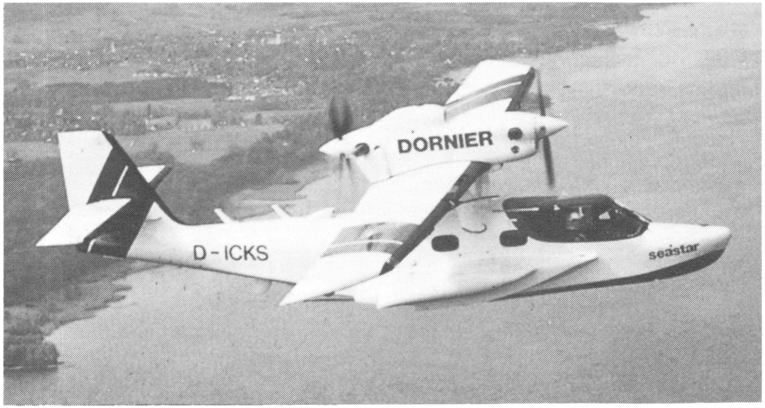


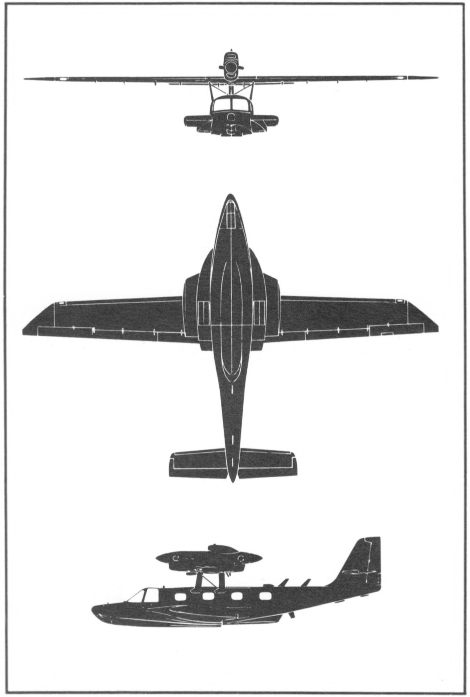
The LA4 Buccaneer four-seat light amphibian is the production development of the C-1 Skimmer, which first flew in 1948. The first Lake-built aircraft, designated LA4, flew in 1960. Two versions are currently built, the standard LA4-200 EP and the LA4-200 EPR with a reversible pitch propeller. A six-seat development, the LA-250 Renegade, with a longer fuselage and more powerful engine, and the LA-270 Turbo Renegade are now in production. Over 1,300 LA4s of all versions have been built. Powered by a 200hp Lycoming, the standard LA4-200 has a cruising speed of 248km/h and range with maximum fuel at maximum cruising speed is 1,046km. *Country of origin:* USA. *Silhouette:* LA4-200. *Picture:* LA-270 Turbo Renegade.

Confusion: Lake LA4

Dornier Seastar CD 2

Power: 2 × PT6A turboprops *Span:* 15.5m *Length:* 12.46m



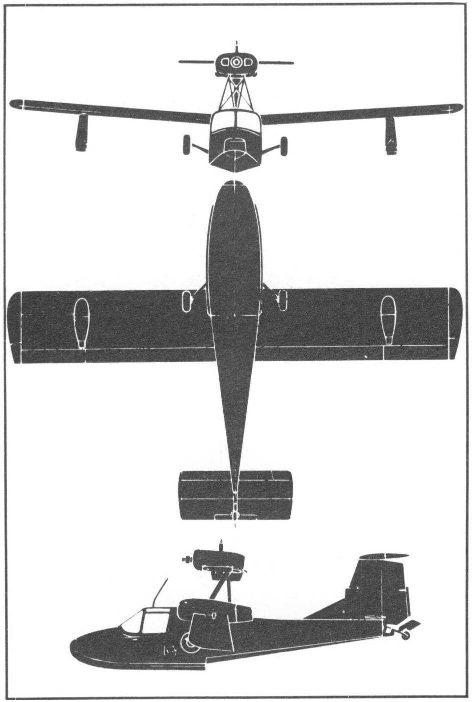


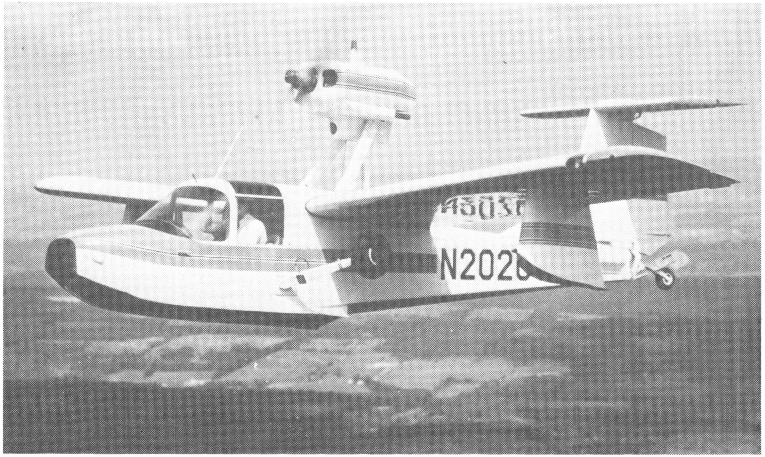
The Claudius Dornier company (not to be confused with the Dornier company) has produced a 12-passenger twin turboprop amphibian. The company is now owned by Dornier Composite Aircraft. The prototype, later damaged, made its first flight in August 1984 and was followed, in developed form, by a second machine in April 1987. The pusher/tractor propeller engines are mounted in tandem above the parasol wing which has a marked similarity in planform to that of the Dornier 228. Production CD2s will have largely glassfibre hulls and carbon fibre wings. A variety of missions, civil and military, are envisaged apart from purely passenger transport. Maximum cruising speed of the CD2 is 341km/h and range 555km. *Country of origin:* Germany.

Teal TSC-1 Teal

Confusion: Lake Buccaneer

Power: 1 × Lycoming piston engine *Span:* 9.73m *Length:* 7.19m

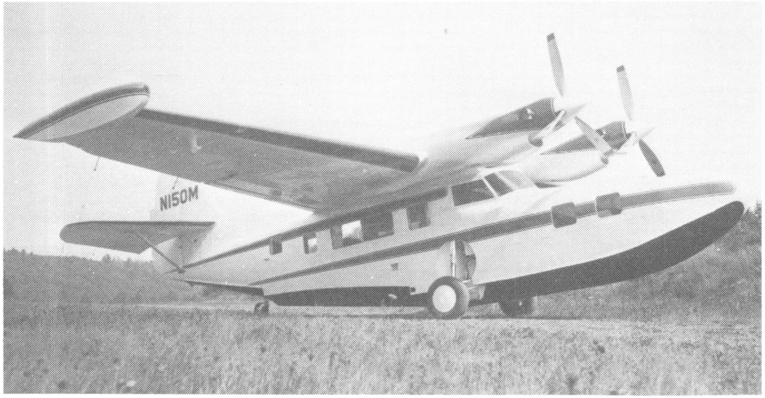


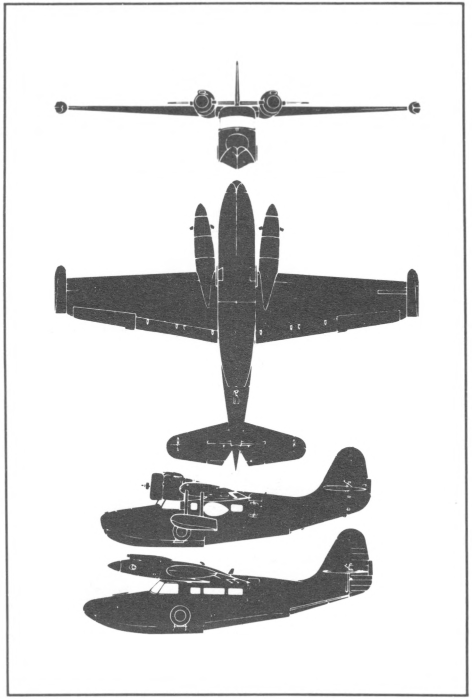


The two-seat all-metal Teal amphibian was developed originally by Thurston Aircraft and first flown in 1968. Design and production rights were acquired by Schweizer in 1972. Production of the Teal I ran to 15 aircraft. The Teal II incorporated several minor design changes. The entire Teal programme was transferred to Teal Aircraft Corporation at St Augustine, Florida, in the Spring of 1976. Last known production versions were the Teal II and the improved Teal III, which has a more powerful Lycoming engine and can accommodate up to four people. The standard Teal II cruises at 185km/h. *Country of origin:* USA. *Silhouette and picture:* Teal II.

McKinnon G-21 Turbo-Goose

Power: 2 × PT6A turboprops *Span:* 15.49m *Length:* 12.07m



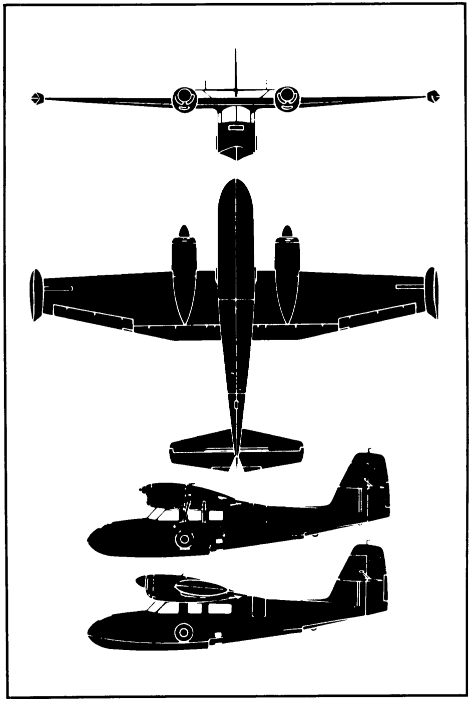


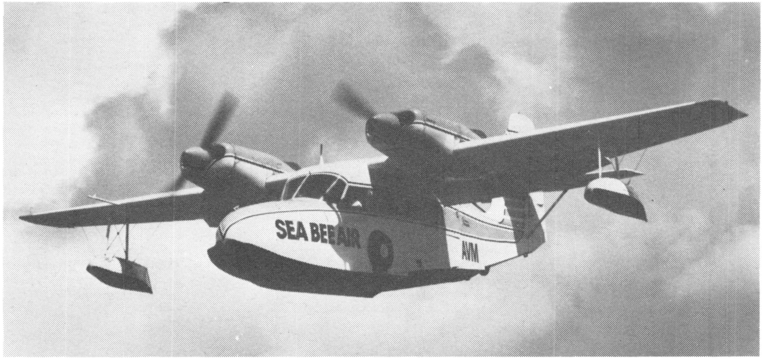
The original six/seven-seat Grumman G-21 first flew in 1937, powered by a pair of 450hp Wasp Junior radials. In the conversion, carried out by McKinnon Enterprises of Oregon, the radial engines are replaced by a pair of 680shp turboprops giving a maximum speed of about 354km/h. Other changes include the fitting of retractable wingtip floats, longer nose, dorsal fin and larger cabin windows as well as numerous interior and equipment changes. The first Turbo-Goose conversion was flown in 1966. There is accommodation for 9 to 12 people. The company subsequently became McKinnon-Viking and moved to Canada. Conversion work has ceased. *Country of origin:* USA. *Main silhouette:* Turbo-Goose; *upper side view:* G-21. *Picture:* Turbo-Goose.

McKinnon Super Widgeon

Confusion: Turbo-Goose

Power: 2 × Lycoming piston engines *Span:* 12.9m *Length:* 9.47m



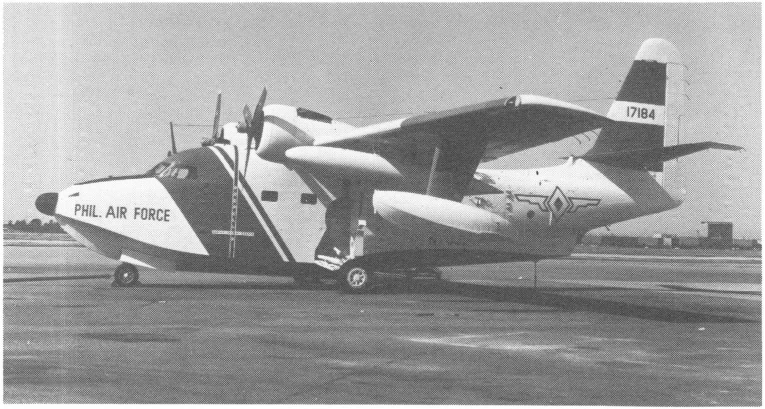


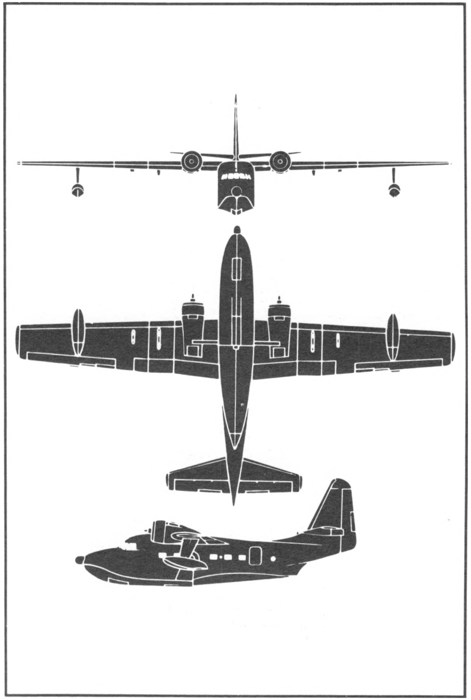
The original G-44 Widgeon was a four-seat light amphibian and first flew in 1940. Although designed as commercial transports the 176 Widgeons built during the Second World War were used as three-seat anti-submarine patrol aircraft. Subsequent civil aircraft were five-seaters and a number were built in France as the SCAN 30. The McKinnon Super Widgeon is an executive conversion with the original Ranger in-line engines replaced by two 270hp Lycomings, giving a cruising speed of 290km/h. The company converted more than 70 aircraft, a number of which have retractable wingtip floats. Other features include picture windows, a modern instrument panel, improved soundproofing and an emergency escape hatch. Three or four passengers can be carried over a maximum-fuel range of 1,600km. *Country of origin:* USA. *Main silhouette:* Super Widgeon; *upper side view:* G-44. *Picture:* Super Widgeon.

Confusion: CL-215

Grumman HU-16 Albatross

Power: 2 × R-1820 piston engines *Span:* 29.46m *Length:* 19.38m



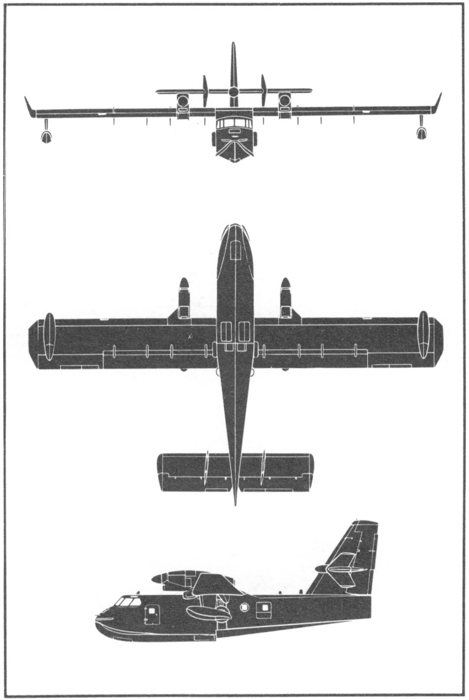


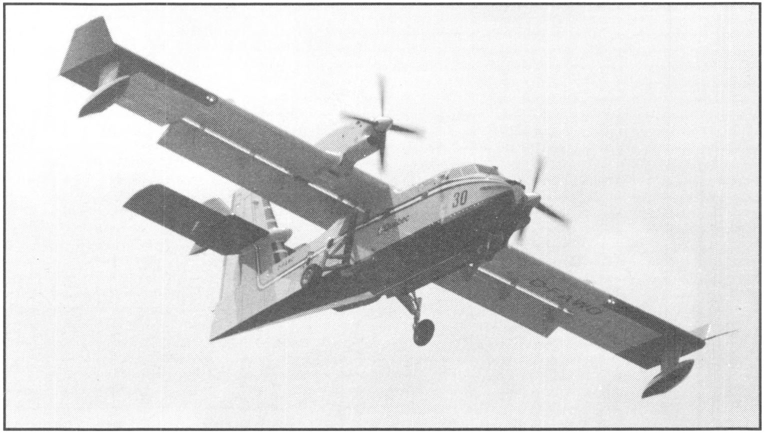
Designed for a US Navy requirement for a utility transport and air-sea rescue amphibian, the HU-16 Albatross first flew in 1947. It was subsequently selected by the US Air Force and a total of more than 300 were built in several versions, including the HU-16D for the US Navy and the HU-16E for the US Coast Guard. Some 20 remain in service with Greece, Malaysia, Mexico and the Philippines and 12 aircraft have been converted by Grumman Aerospace to 28-seat configuration for civil use under the designation G-111. Typical cruising speed of the G-111 is 382km/h. *Country of origin:* USA. *Silhouette and picture:* HU-16B.

Canadair CL-215

Confusion: Albatross

Power: 2 × R-2800 piston engines *Span:* 28.6m *Length:* 19.82m



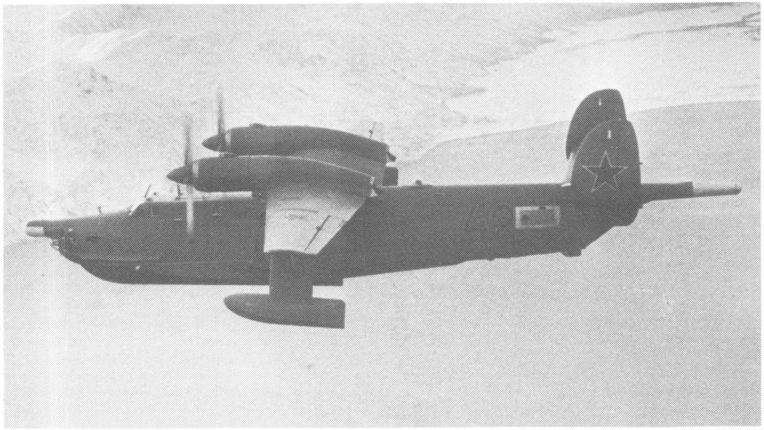


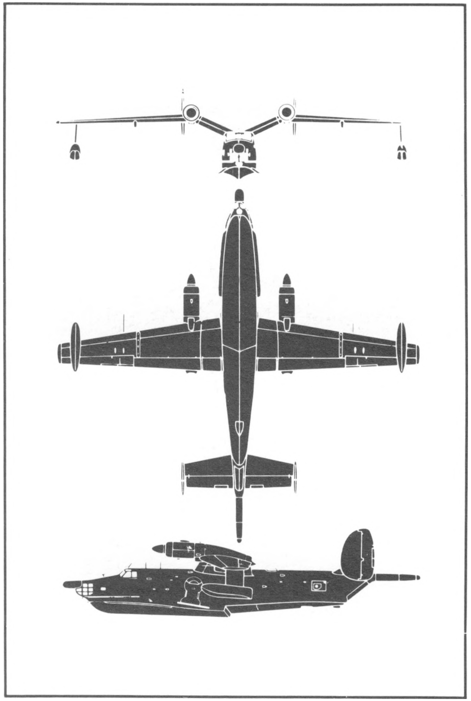
The Canadair CL-215 amphibian first flew in October 1967. Designed primarily for firefighting, the CL-215 serves also in air-sea rescue, coastal patrol and passenger transport roles. For firefighting a load of 5,346 litres of water can be carried. Some 125 CL-215s were built and are used by operators in Canada, France, Spain, Greece, Italy, Thailand, Venezuela and Yugoslavia. Powered by two Pratt & Whitney R-1800 radial engines, the CL-215 cruises at 291km/h. The latest version is the CL-215T converted to turboprop power with PW123AF engines. The CL-215T has upturned winglets at the tips and auxiliary fins on the tailplane. CL-415 is the new production version. *Country of origin:* Canada. *Silhouette:* CL-415. *Picture:* CL-215T.

Confusion: PS-1/US-1

Beriev Be-12 Mail

Power: 2 × Ivchenko turboprops *Span:* 29.7m *Length:* 32.9m



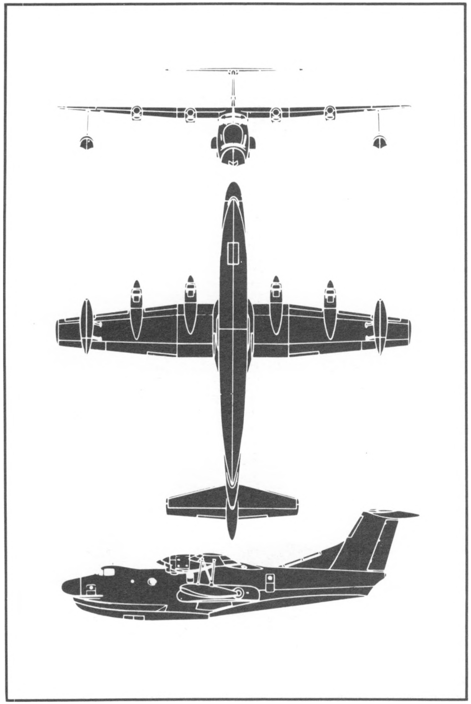


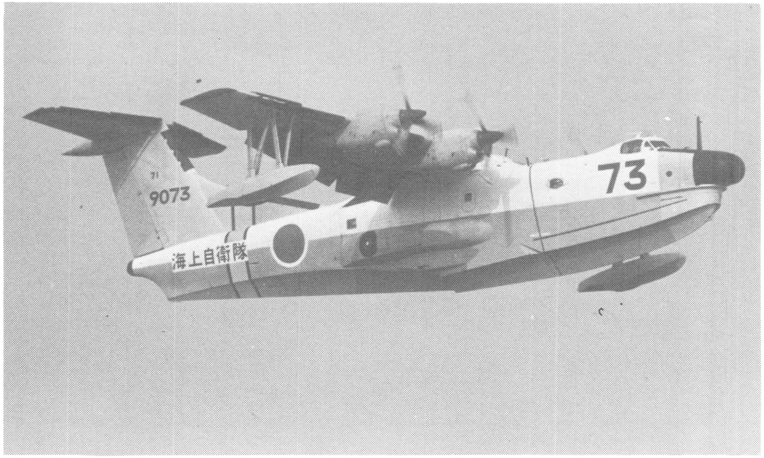
The twin-engined Be-12 maritime patrol amphibian is in current service with the CIS. A successor to the Be-6, it was displayed publicly for the first time at Moscow Tushino in 1961. The Mail has a normal operating speed of about 322km/h. Armament is carried in an internal bomb bay and there is provision for two stores pylons underneath each wing. About 100 Be-12s are thought to have been built. The Be-12 holds every one of the FAI world records in its class, no fewer than 38 in all. *Country of origin:* Russia.

Shin Meiwa PS-1/US-1

Confusion: Mail

Power: 4 × T64 turboprops *Span:* 33.15m *Length:* 33.46m



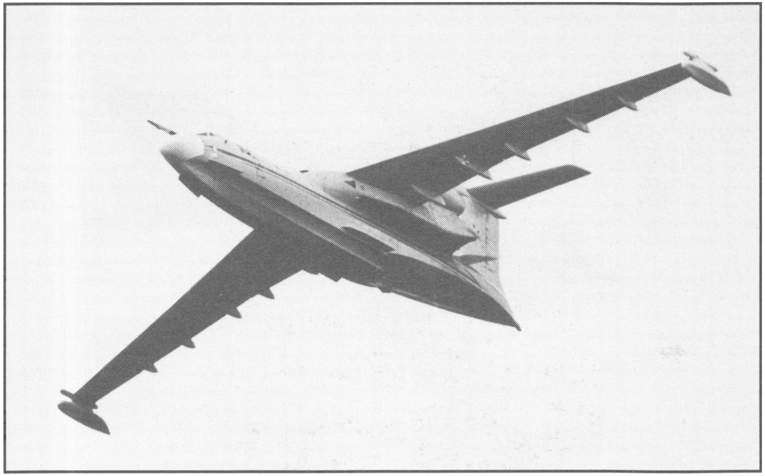


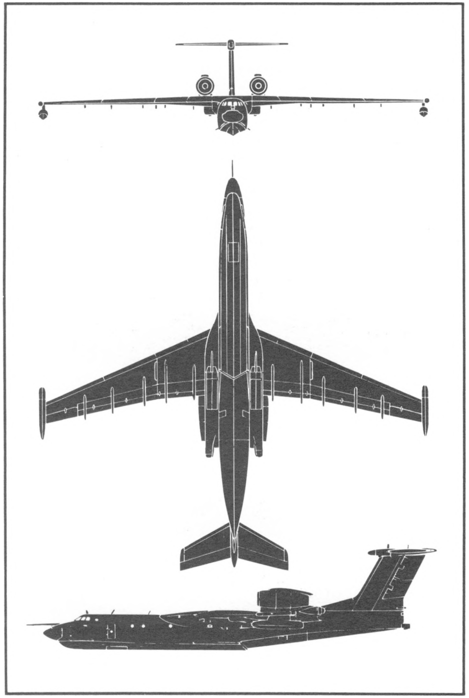
Developed to fill a Japanese Maritime Self-Defence Force requirement for an anti-submarine flying boat (PS-1) and a search and rescue amphibian (US-1), this aircraft, which carries the company designation SS-2 (SS-2A for the amphibious version), first flew in October 1967. Some 23 PS-1s, including two prototypes, were delivered. The first US-1 flew in 1974 and eight are now in service. Later aircraft in this series are fitted with more powerful engines and are designated US-1A. Cruising speed of the US-1A is 426km/h. *Country of origin:* Japan. *Silhouette and picture:* SS-2A.

Confusion: PS-1

Beriev Be-42 Albatross

Power: 2 × D-30KPV turbofans *Span:* 41.8m *Length:* 43m



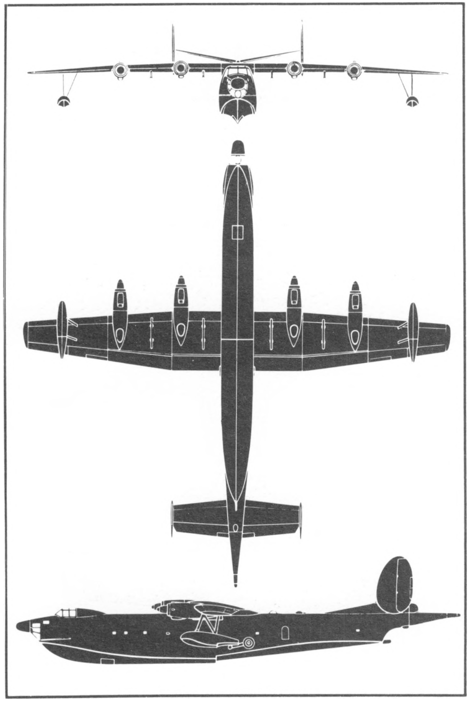


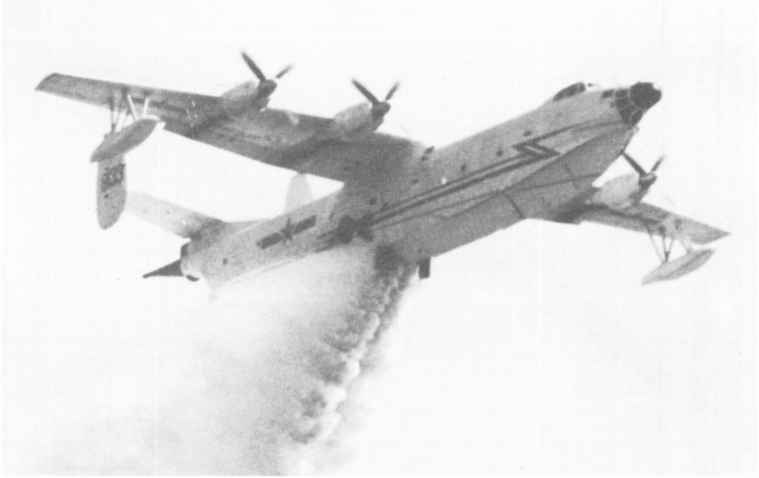
Bearing the NATO code-name 'Mermaid', the Be-42 is the largest amphibian yet built. One task will be search and rescue, originally, the requirement for it arose because of the need to support submarines far out at sea. The Be-42 can carry power boats, life rafts and a medical team plus up to 60 passengers. As a pure transport the type can carry up to 100 passengers or freight. Patrol speed is 400km/h. For anti-submarine warfare the Be-42 has been the subject of an order for 20 machines. A civil version is projected as the Be-200. *Country of origin:* Russia.

HAMC SH-5 (PS-5)

Confusion: Shin Meiwa PS-1/US-1

Power: 4 × Harbin turboprops *Span:* 36m *Length:* 38.9m



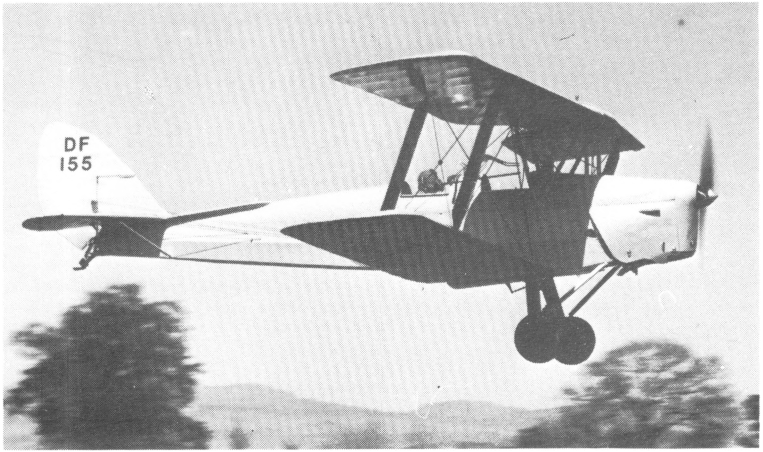


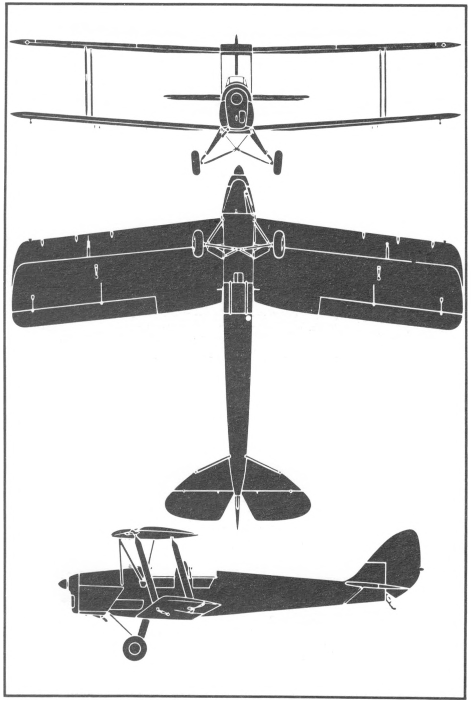
First flown in April 1976, the SH-5 flying boat amphibian represents a rare breed in current designs. It fulfills a variety of roles including maritime patrol/ASW, surveillance, search and rescue and water bombing. The type entered service in 1986 following a protracted development programme. The SH-5 normally carries a crew of eight. The nose is equipped with a search radar, while there is a magnetic anomaly detector fitted in the tail. Maximum all-up weight is 26,500kg, maximum cruising speed 450km/h and maximum range 4,750km. *Country of origin:* China.

Confusion: SV.4

de Havilland D.H.82 Tiger Moth

Power: 1 × de Havilland piston engine *Span:* 8.94m *Length:* 7.29m



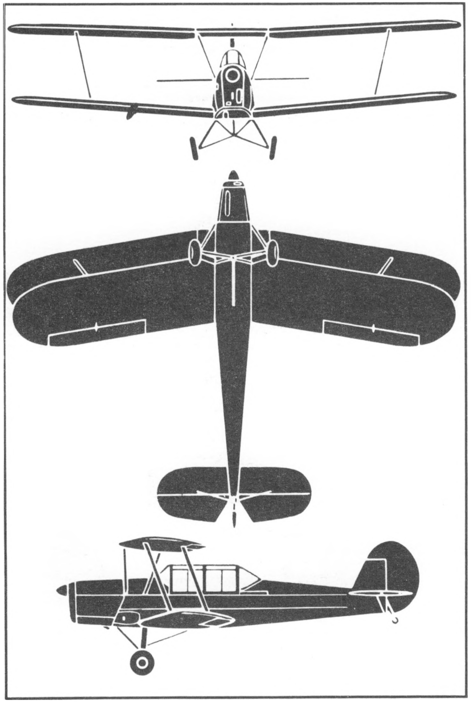


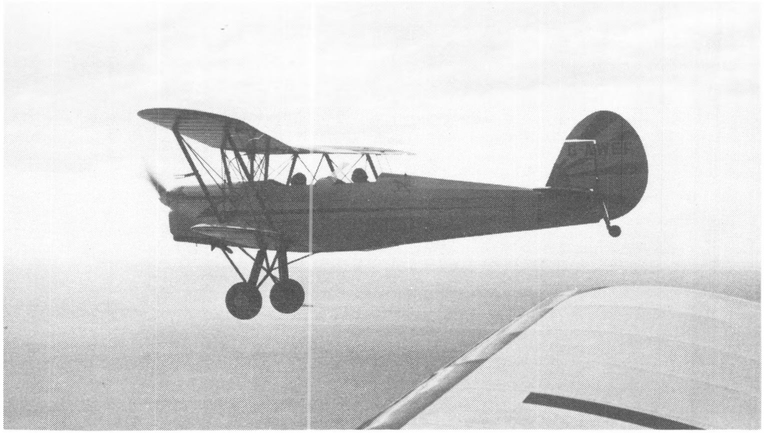
Probably the most famous training aircraft of all, the Tiger Moth first flew in 1931. When production ended more than 7,000 had been built in Britain, Canada, Australia and New Zealand. A number are still airworthy. Its distinctive de Havilland-style tail and swept-back wings make the Tiger Moth fairly easy to recognise. Powered by a 130hp Gipsy Major engine, the Tiger Moth cruises at 145km/h over a range of 483km. *Country of origin:* UK.

Stampe SV.4

Confusion: Tiger Moth

Power: 1 × Renault or 1 × de Havilland piston engine *Span:* 8.38m *Length:* 6.96m



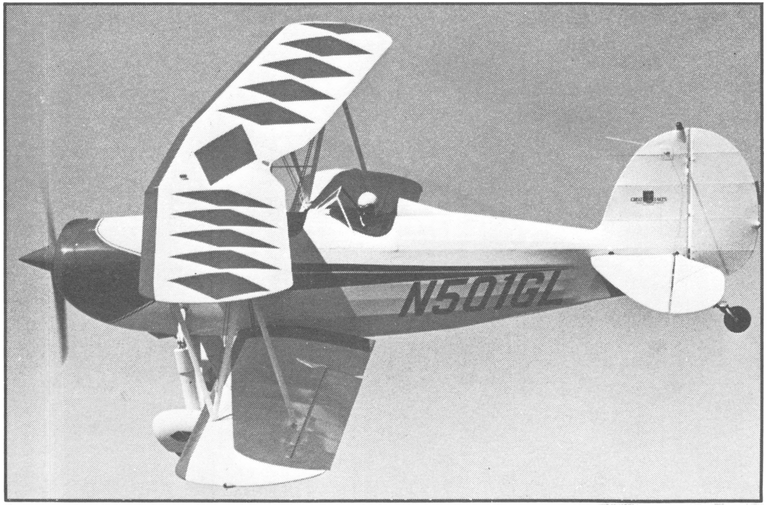


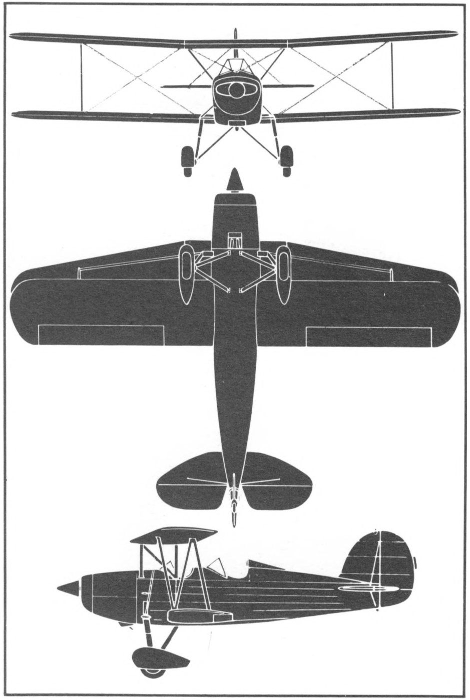
The SV.4 tandem two-seat light biplane was first flown in 1933, powered by a 130hp Gipsy III engine. Used originally as a primary trainer by the Belgian Air Force, it has since been much sought after as a sporting aircraft by virtue of its excellent aerobatic qualities. Before the advent of the Pitts and Zlin the Stampe SV.4 was the mainstay of British competition aerobatics. Bearing a superficial resemblance to the Tiger Moth, the Stampe may be recognised by its rounded fin and rudder, rounded wingtips, and ailerons on both upper and lower wings. Powered by the 130hp Gipsy Major, the SV.4 cruises at 177km/h. *Country of origin:* Belgium.

Confusion: Pitts Special

Great Lakes Sports Trainer Model 2T-1A-2

Power: 1 × Lycoming piston engine *Span:* 8.13m *Length:* 6.2m



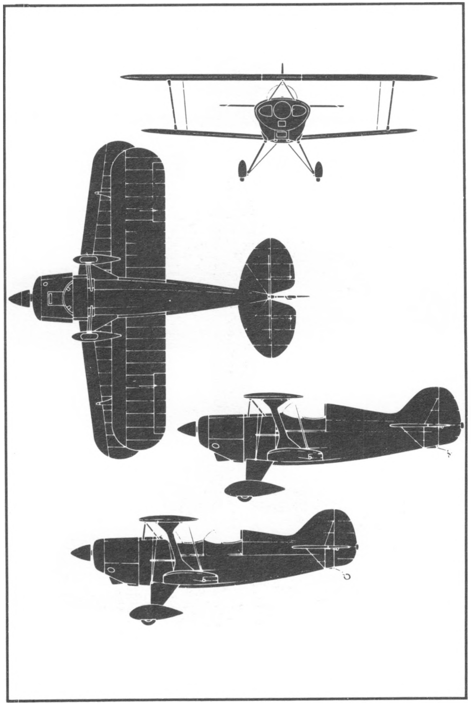


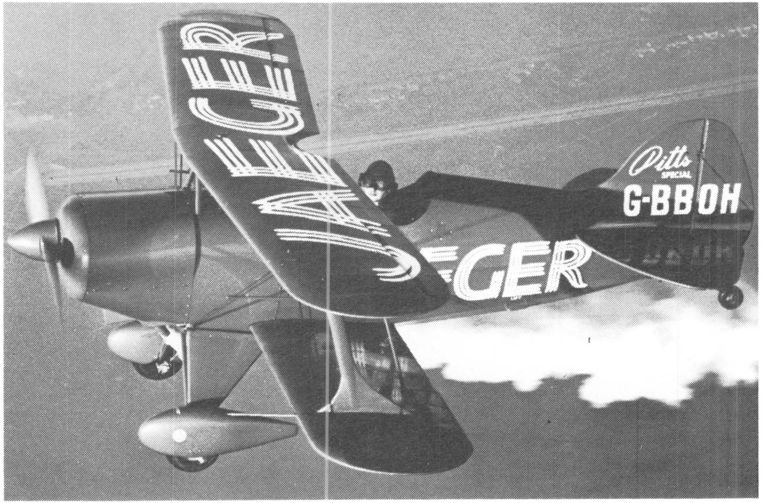
The original Model 2T-1 tandem two-seat light biplane was built in substantial quantities by the Great Lakes Aircraft Co between 1929 and 1932 and was fitted with a variety of engines ranging in power from 95 to 200hp. The company was taken over in 1972 and subsequently the Great Lakes Sports Trainer was put back into production, initially powered by a 140hp Lycoming. Following suspension of production from 1982, the line was reported to be restarting in 1984. Current aircraft are fitted with 180hp engines. *Country of origin:* USA. *Silhouette and picture:* Sports Trainer.

Pitts S-1/S-2 Special

Confusion: Sports Trainer, Bücker Jungmann/Jungmeister

Power: 1 × Lycoming piston engine *Span:* 5.28m *Length:* 4.71m



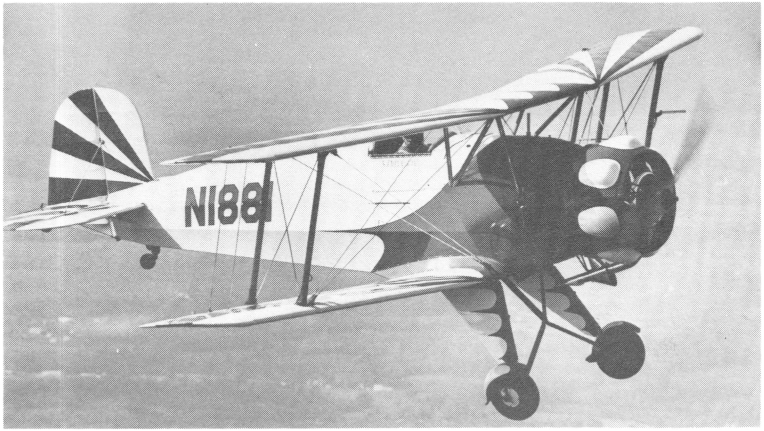


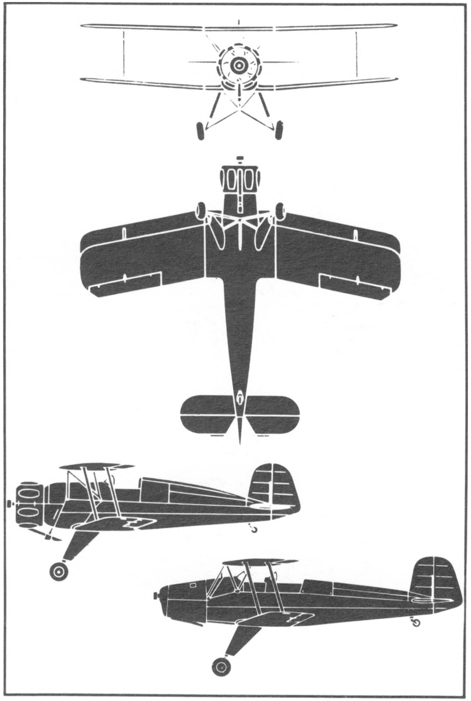
First flown in single-seat form in 1944, the Pitts Special has become the best-known competition aerobatics aircraft. Now built by Christen Industries, both single-seat S-1S/S-2S and two-seat S-2A/S-2B versions are manufactured. An advanced single-seat version known as the S-1T special is available. All versions can be purchased in kit form. Powered by a 180hp Lycoming engine, top speed of the S-1S is 283km/h. *Country of origin:* USA. *Main silhouette:* S-1S; *lower side view:* S-2A. *Picture:* S-1S.

Confusion: Pitts Special

Bücker Jungmann/Jungmeister

Power: 1 × Hirth (Jungmann) or 1 × Siemens piston engine (Jungmeister) *Span:* (Jungmann): 7.4m *Length:* (Jungmann): 6.6m



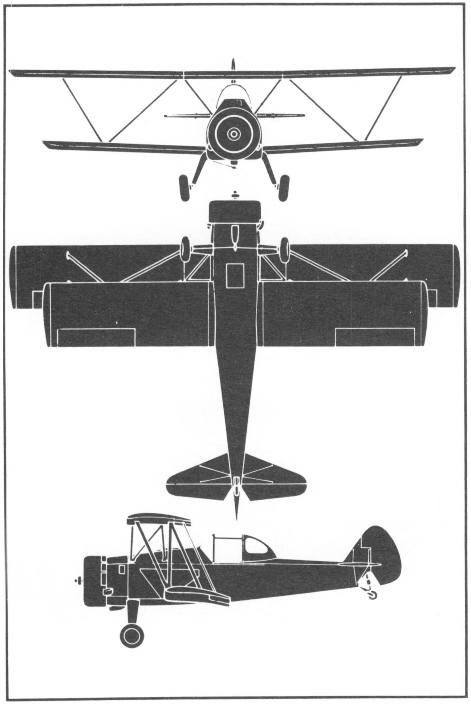


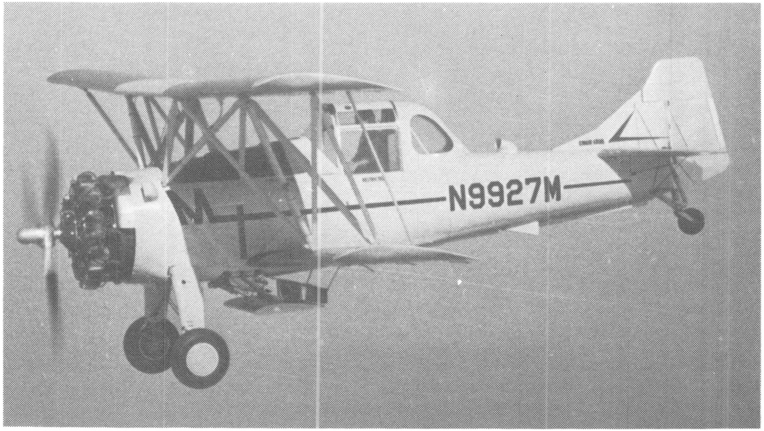
The tandem two-seat Jungmann was first flown in 1934 and several remain in use in various parts of the world. The type has been licence-built in several countries, including Czechoslovakia, Switzerland and Spain, with production in the latter country resuming in 1956 with the manufacture of 55 aircraft by CASA. The single-seat Jungmeister was introduced in 1935 as an advanced aerobatic biplane and, like the Jungmann, the type was licence-built in Spain and Switzerland. Limited production was restarted in 1968 by Aero Technik Canary in West Germany, the aircraft being standard apart from the wheels and instruments. *Country of origin:* Germany. *Main silhouette:* Jungmeister; *lower side view:* Jungmann. *Picture:* Jungmeister.

Emair MA-1B Diablo 1200

Confusion: Super Ag-Cat

Power: 1 × R-1820 piston engine *Span:* 12.7m *Length:* 9.14m



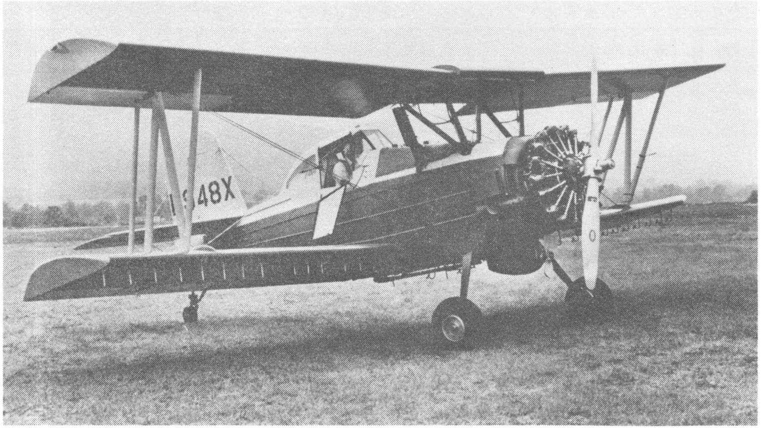


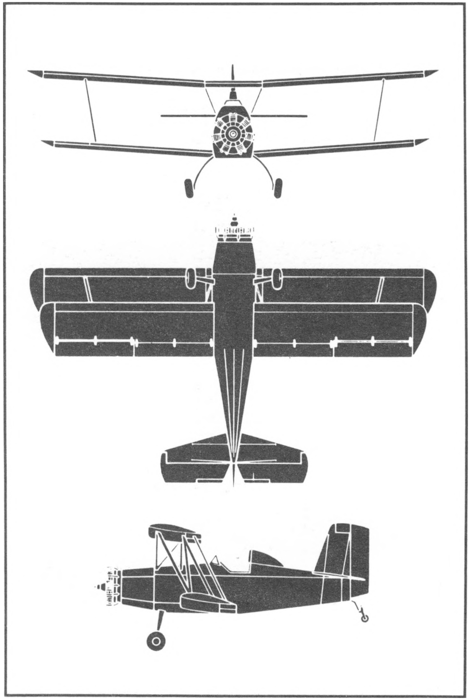
The first Emair MA-1 was built by Air New Zealand engineers under contract to a Hawaiian company and first flew in 1969. Subsequently 25 were produced in Texas by Emair. Production of the MA-1 ended in 1976 and a new version, the MA-1B Diablo 1200, was put into production, 48 being built before the line was closed in 1980. Powerplant is a 1,200hp Wright R-1820 radial derated to 900hp, giving a cruising speed of 185km/h. As in most agricultural aircraft, the cockpit is raised well above the level of the fuselage top decking and incorporates a hefty roll-bar. The chemical hopper is built into the front fuselage and has two outlets. *Country of origin:* USA. *Silhouette:* MA-1. *Picture:* MA-1B.

Confusion: MA-1B

Schweizer Super Ag-Cat

Power: 1 × R-985 or 1 × R-1340 piston engine *Span:* 10.95m *Length:* 7.42m



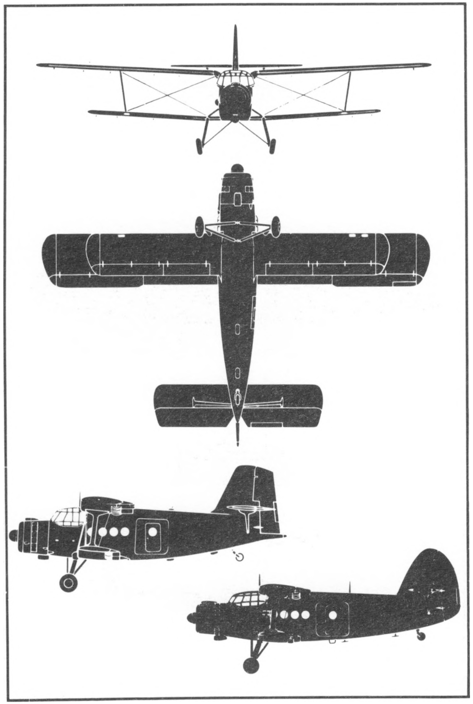


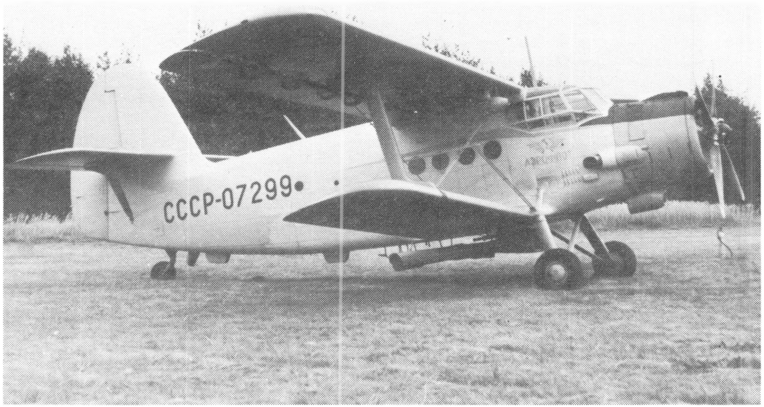
The original Ag-Cat agricultural biplane first flew in 1957 and was manufactured by Schweizer under licence from Grumman; Schweizer has since taken over all rights to the Ag-Cat. The Super Ag-Cat was first certificated in 1966 and was fitted with a 600hp Pratt & Whitney. Several versions of the Super Ag-Cat have been built, with a variety of power options; the B and C versions are also slightly larger. The Turbo Ag-Cat D has a very long nose housing a Pratt & Whitney PT6A turboprop. Latest Ag-Cats are the 450B and Super-B Turbine. Some 2,500 Ag-Cats have been built. *Country of origin:* USA. *Silhouette:* Ag-Cat. *Picture:* Super Ag-Cat.

Antonov An-2 ‘Colt’

Confusion: —

Power: 1 × Shvetsov radial *Span:* 18.18m *Length:* 12.74m



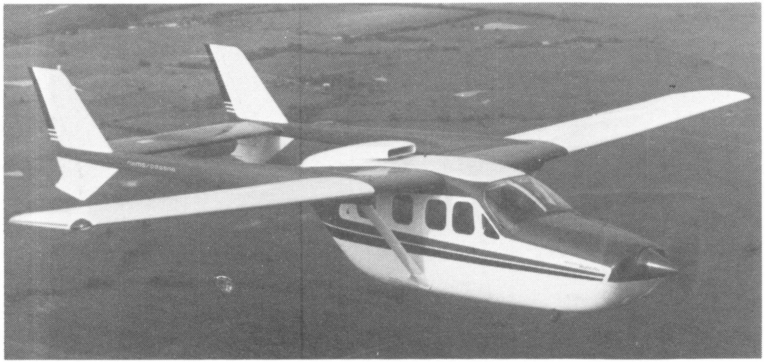


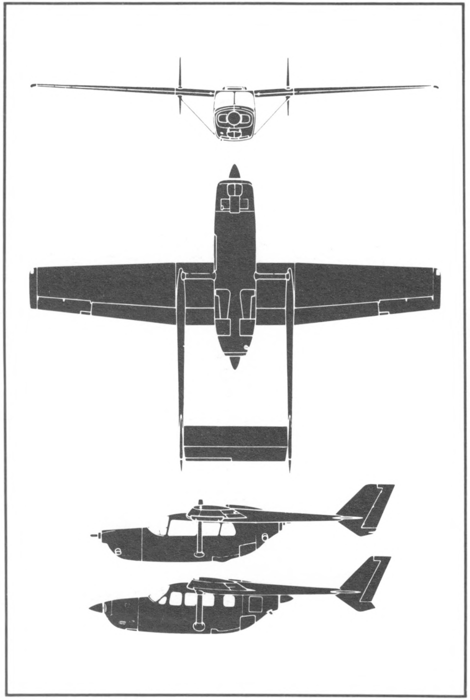
The first An-2 made its maiden flight in 1947. No longer produced in the Ukraine, the An-2 is manufactured in Poland by the WSK factory at Mielec. Others have been built in China under the designation Y-5, total production exceeds 17,000. The An-2 is used for a variety of tasks including crop spraying, transport and photography. Powered by a nine-cylinder radial, the An-2 has a cruising speed of 185km/h. *Countries of origin:* Poland/Ukraine. *Main silhouette:* An-2; *upper side view:* An-2M. *Picture:* An-2R.

Confusion: Vampire

Cessna Model 337 Skymaster/O-2

Power: 2 × Continental piston engines *Span:* 11.63m *Length:* 9.07m



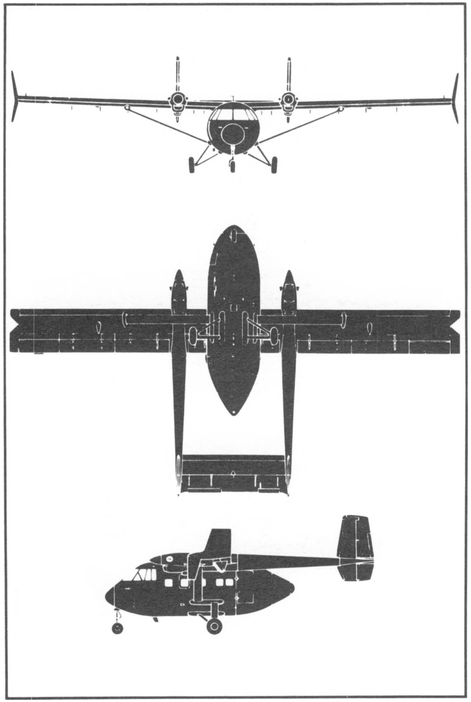


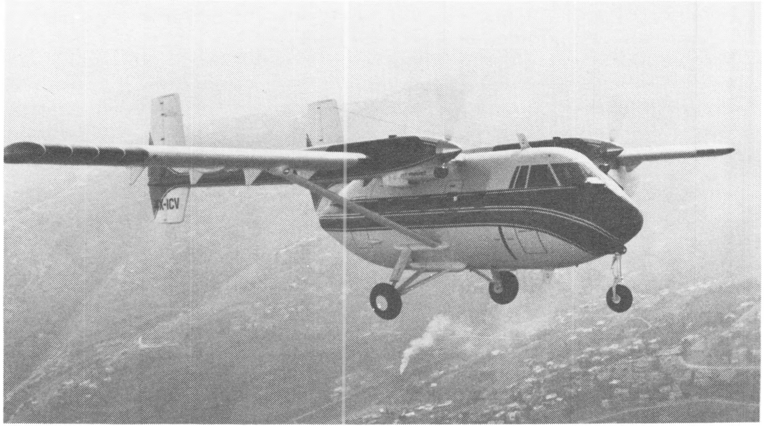
This all-metal four/six-seater is unusual in having a 210hp Continental mounted at each end of the fuselage nacelle. First flown in 1961, it entered series production as the fixed-undercarriage Model 336 Skymaster in May 1963. A military version, designated O-2, has also been delivered to the USAF and Iranian Air Force for forward air controller and psychological warfare missions. Military deliveries totalled 513. The Model P337 is a pressurised version distinguished by having four instead of three fuselage cabin windows. Deliveries of all variants had totalled 2,993 by the time production was terminated in 1980. Performance figures for the P337 include a maximum level speed of 402km/h, maximum cruising speed of 380km/h and a range at economical cruising speed of 2,140km. *Country of origin:* USA. *Main silhouette:* Model P337; *upper side view:* O-2. *Picture:* Model P337.

IAI 101/102/201 Arava

Confusion: Noratlas

Power: 2 × PT6A turboprops *Span:* 20.96m *Length:* 13.03m



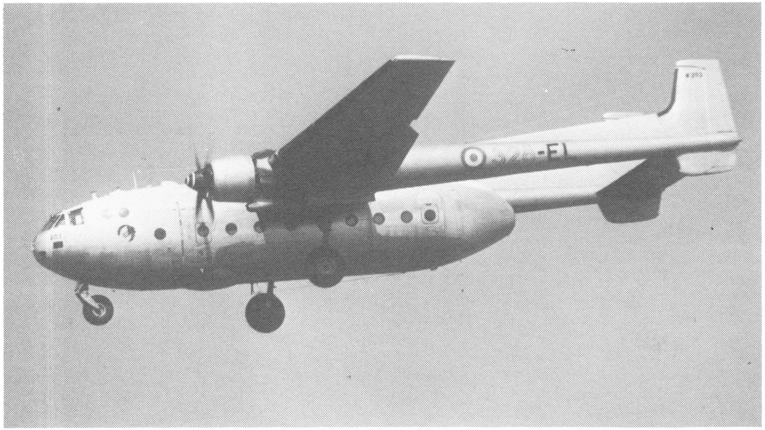


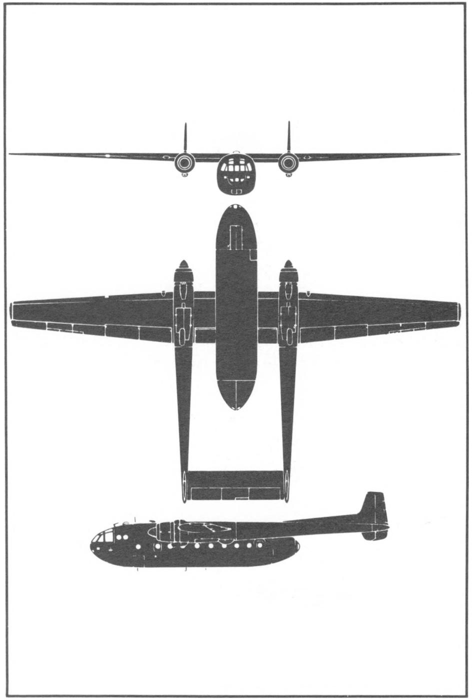
The Arava was designed to fulfil a requirement for a light STOL transport for civil and military use. First flight was in late 1969. Four versions have been announced to date. Three of these are externally similar: the IAI 101, the first civil version; the IAI 102, the second civil version, based on the original 101 and able to accommodate up to 20 passengers; and the IAI 201, the military transport version. Based on the original 101, it first flew in 1972. The IAI 202 is distinguished by its wingtip winglets. Electronic-warfare versions of the IAI 201 are in service with the Israeli Air Force. Production of the Arava finished in 1987. *Country of origin:* Israel. *Silhouette:* IAI 202. *Picture:* IAI 201.

Confusion: Arava 101, Boxcar

Nord Noratlas

Power: 2 × Hercules piston engines *Span:* 32.5m *Length:* 21.96m



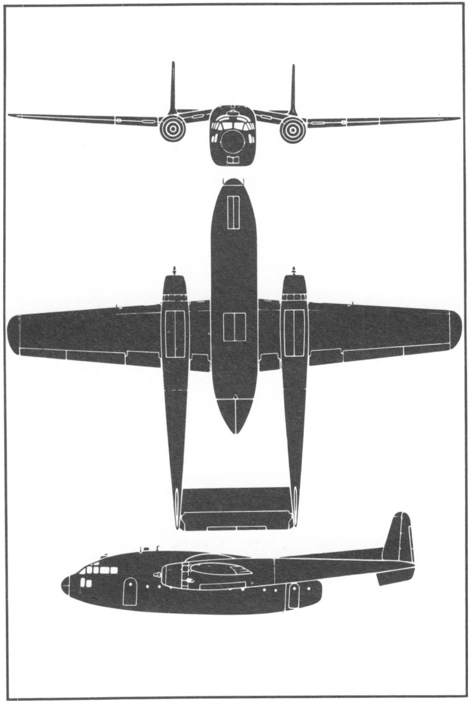


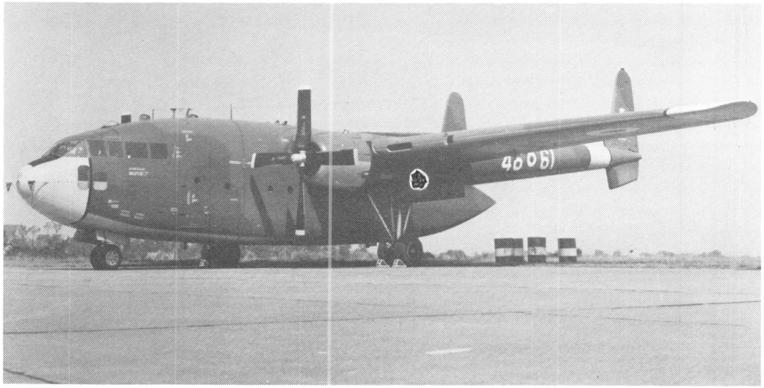
The twin-engined, twin-boom Noratlas was the standard medium tactical transport of both the French and German Air Forces, which received 211 and 188 respectively. Small numbers of aircraft serve with six air forces round the world. Five crew and up to 45 troops can be carried, or alternatively, up to 6,803kg of freight. Similar in size to the Fairchild C-119 Flying Boxcar, the Noratlas is identified by squared-off rudders, narrower wings and a distinctive stepless nose. Powered by two 2,090hp Snecma-built Bristol Hercules radials, the Noratlas cruises at 322km/h. *Country of origin:* France.

Fairchild C-119 Flying Boxcar

Confusion: Noratlas, Arava

Power: 2 × R-3350 piston engines *Span:* 33.3m *Length:* 27.25m



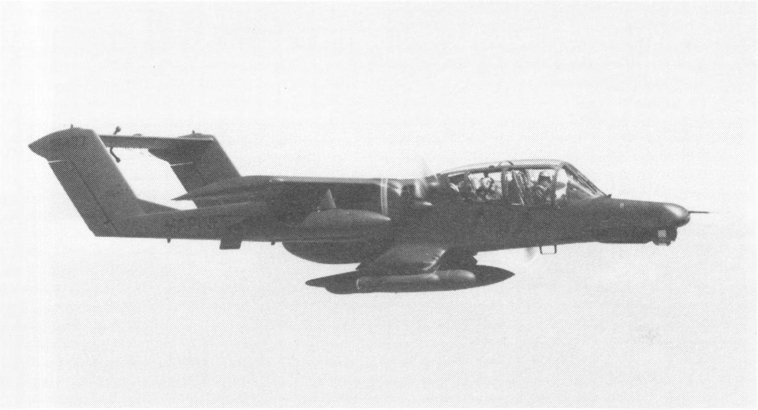


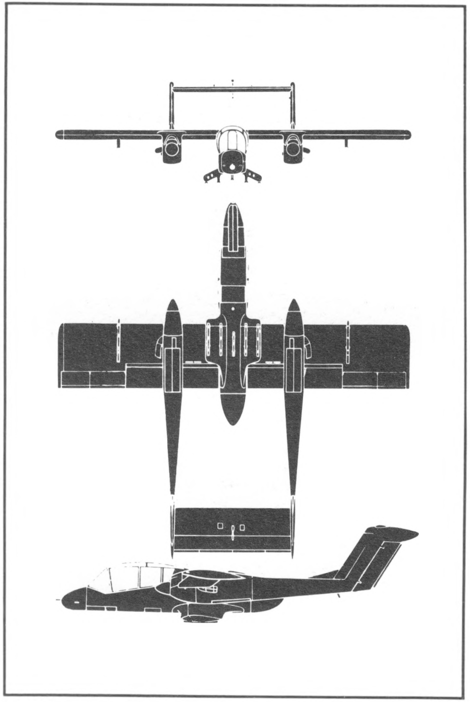
The C-119 is a development of the C-82 Packet, which first flew towards the end of the Second World War. Retaining the twin-engine, twin-boom arrangement of the Packet, the Flying Boxcar has a longer and slimmer fuselage. When production ended in 1955 some 1,100 C-119s had been built. Although no longer used in quantity by US forces, the type is still in service with Taiwan. Powered by two 3,400hp Wright R-3350 radials, the C-119 cruises at 320km/h. Maximum payload is 9,070kg, which can be carried over a range of 1,595km. Ferry range is 5,570km. *Country of origin:* USA.

Confusion: —

Rockwell OV-10 Bronco

Power: 2 × T76 turboprops *Span:* 12.19m *Length:* 12.67m

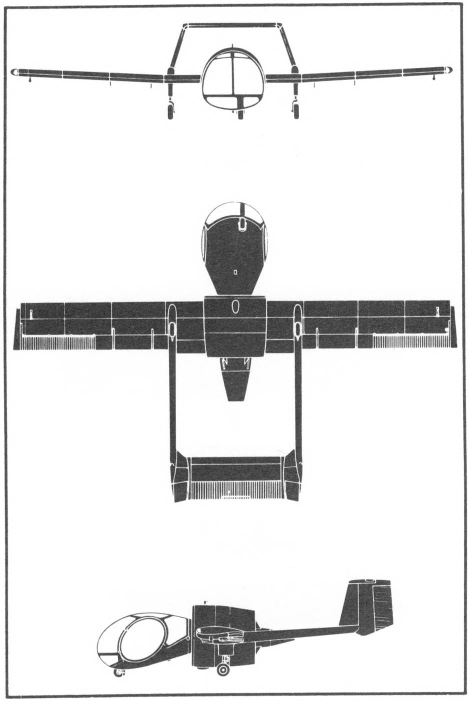


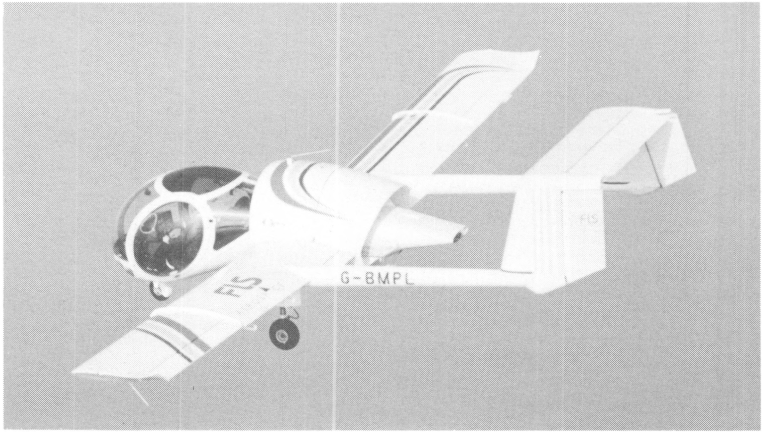


The Bronco was North America's winning entry in the US Navy's Light Armed Reconnaissance Aircraft (LARA) competition and the first prototype flew for the first time in mid-1965. The OV-10A, the basic production aircraft, is in service with the USAF and US Marine Corps. This variant has also been delivered to five other countries. The OV-10B is used for target towing, while the OV-10B(Z) is equipped with an auxiliary turbojet mounted above the fuselage nacelle. The OV-10D is the Night Observation Gunship System (NOGS) with increased armament, including a 20mm gun turret beneath the rear fuselage. *Country of origin:* USA. *Silhouette:* OV-10A. *Picture:* OV-10D.

Lovaux Optica Scout *Confusion:* Bronco

Power: 1 × Lycoming piston engine and fan *Span:* 12m *Length:* 8.15m



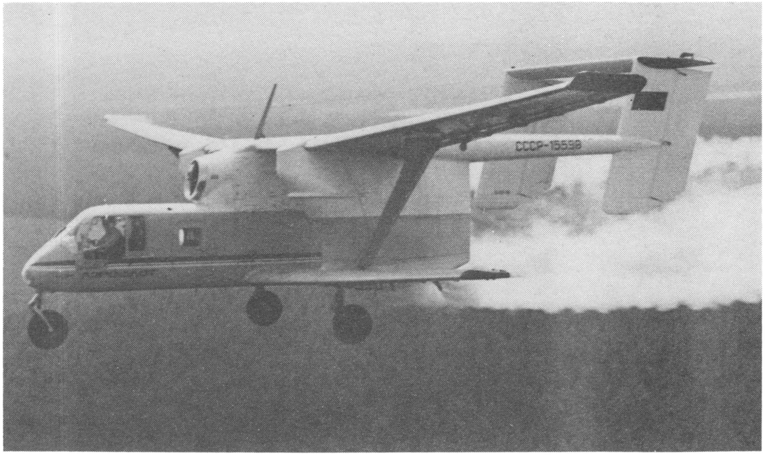


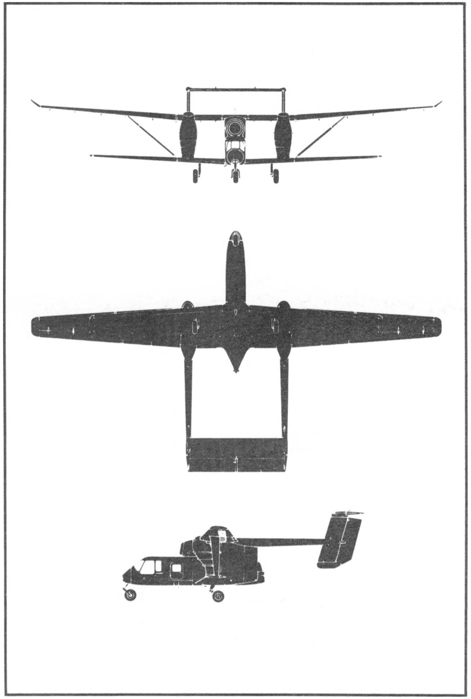
Like the Lear Fan, the Optica Scout is not a jet but it looks like one in the air. A unique design, this three-seater with twin booms and high tail is designed for aerial surveillance of all types and photography. It can loiter at speeds as low as 98km/h and is much cheaper to operate than a helicopter. The Lycoming piston engine drives a fixed-pitch fan; this combination is known as a ducted propulsion unit. First flown in December 1979, the Optica was originally known as the Edgley EA7 Optica. The Edgley Company was renamed Optica Industries and, later, Brooklands Aerospace. Lovaux Ltd, a subsidiary of FLS Aerospace Ltd, acquired the assets of Brooklands Aerospace in 1990. The Optica is built at Bournemouth, Hampshire. *Country of origin:* UK.

Confusion: —

PZL-Mielec M-15 Belphegor

Power: 1 × Ivchenko turbofan *Span:* 22.4m *Length:* 12.72m



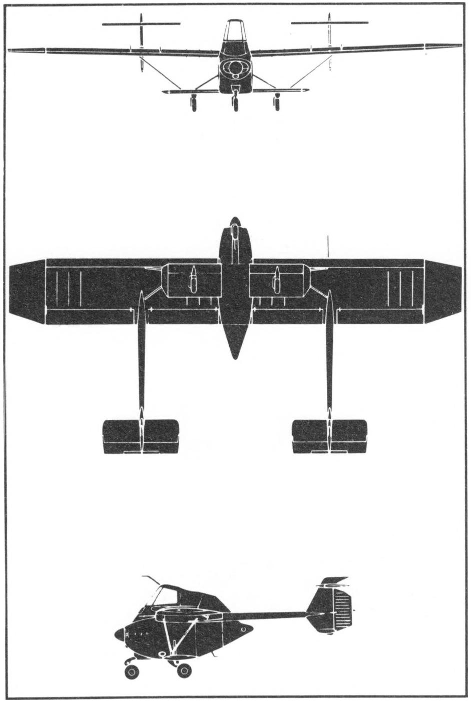


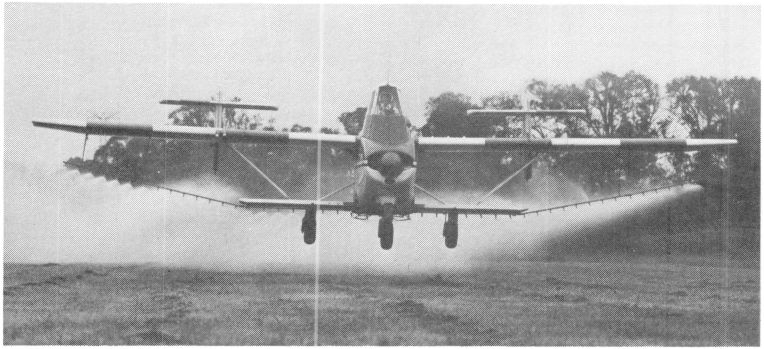
Produced as a result of an anticipated Soviet requirement for up to 3,000 large agricultural aircraft, the Polish-built M-15 Belphegor first flew in 1973. The full-chord interplane struts are used as streamlined chemical hoppers, while the 1,499.4kg-thrust turbofan is mounted in a pod on top of the fuselage. The single pilot is accommodated in the extreme nose of the aircraft and there is a cabin to the rear of the cockpit for two extra people during ferry flights. A tandem two-seat trainer version has been built. Production ended in 1981 after 180 aircraft had been constructed. *Country of origin:* Poland.

Transavia PL-12/T-320 Airtruk/Skyfarmer

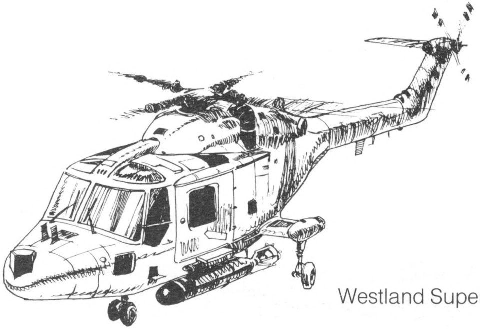
Confusion: —

Power: 1 × Continental or Textron Lycoming piston engine *Span:* 11.98m *Length:* 6.35m

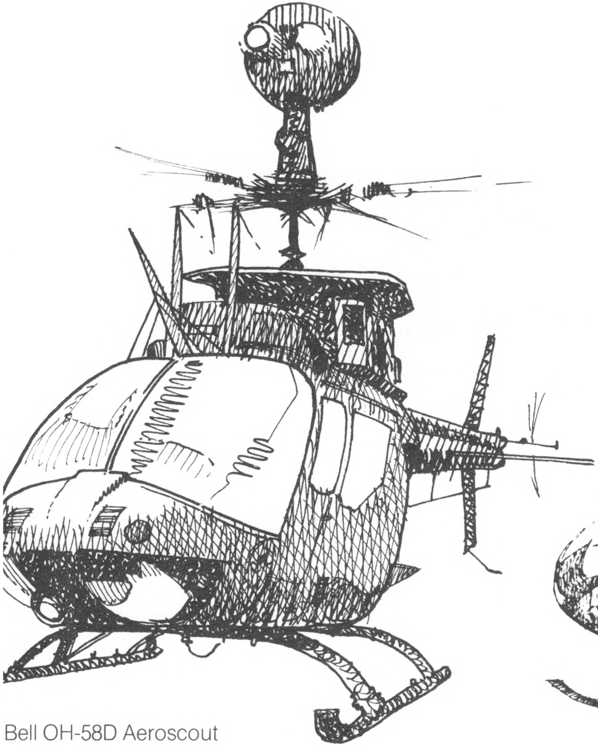




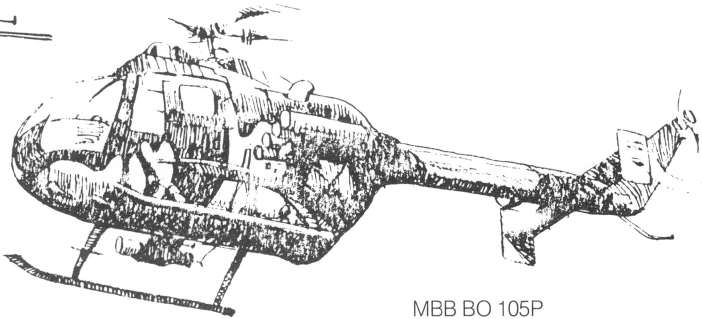
This single-engined agricultural aircraft has one of the most distinctive layouts imaginable, the twin-boom arrangement having been adopted to keep the tails clear of chemicals and also to permit rapid loading from a vehicle. First flown in 1966, the type has been exported to nine countries. A utility version designated the PL-12-U has also been built. This variant can carry one passenger on the upper deck behind the pilot's position and another four on the lower deck. The T-320 Airtruk differs principally in having a 325hp Continental Tiara in place of the PL-12's 300hp Rolls-Royce Continental. A development is the T-300 Skyfarmer with an Avco Lycoming engine. Skyfarmer T-300A has a larger upper fuselage, while T-400 has a higher power engine. *Country of origin:* Australia. *Silhouette and picture:* PL-12.



Westland Super Lynx



Bell OH-58D Aeroscout

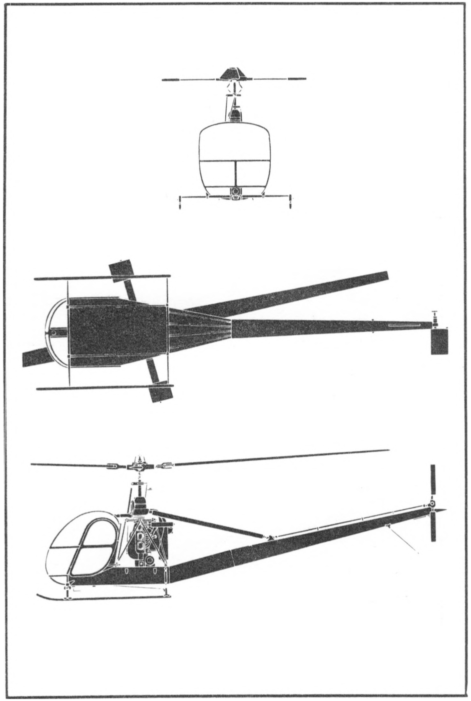


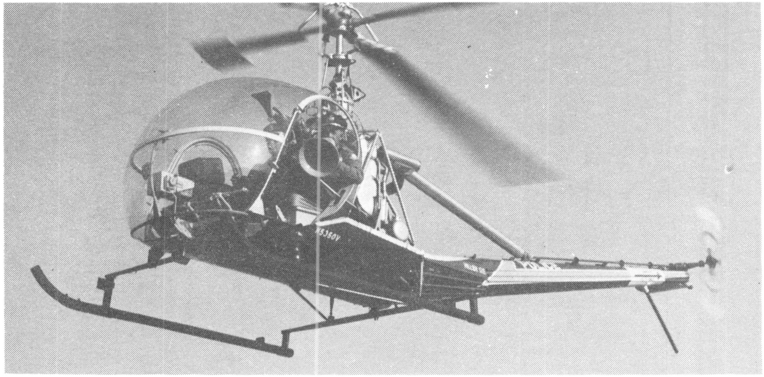
MBB BO 105P

Rogerson Hiller UH-12/Model 360/H-23 Raven

Confusion: Bell 47, Alouette II, R22

Power: 1 × Franklin or 1 × Lycoming piston engine *Rotor dia:* 10.8m *Length:* 8.69m

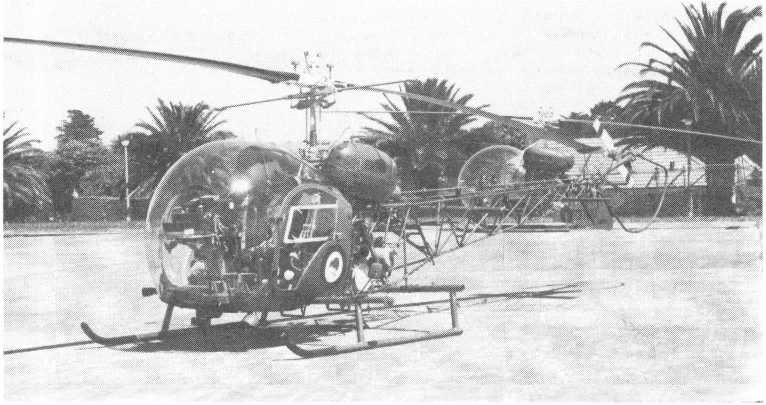


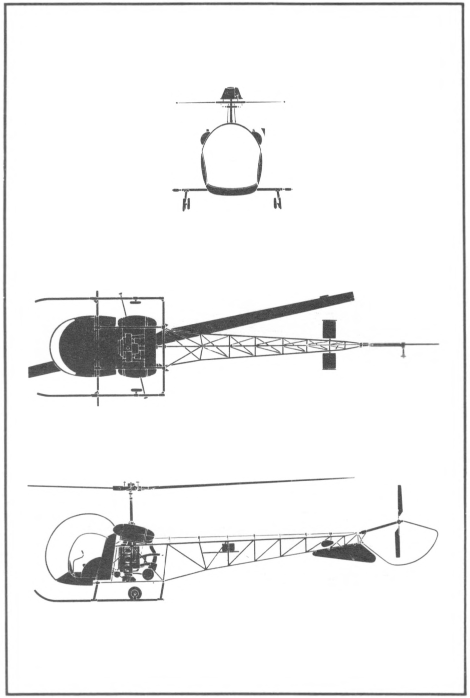


The UH-12 was first produced in 1948 and was followed in 1950 by the UH-12A with a semi-enclosed cockpit. The UH-12B was the military variant and the UH-12C introduced the 'goldfish bowl' cabin. The Models A, B and C were all powered by 200hp or 210hp Franklin engines. The Model 12E was powered by the 305hp Lycoming engine. Hiller Aviation was reformed in 1973 and was taken over by Rogerson Aircraft in 1984, the current designation being UH-12E Hauler for the basic three-seat version. The H-23 Raven is a military version of the Hiller 12. Performance figures for the Model 12E/Raven include a maximum speed of 154km/h and cruising speed of 145km/h. Deliveries of the UH-12 were resumed in 1984 and production relaunched in 1991 by Rogerson. *Country of origin:* USA. *Silhouette and picture:* Hiller 12E.

Bell Model 47

Power: 1 × Lycoming piston engine *Rotor dia:* 11.32m *Length:* 9.63m



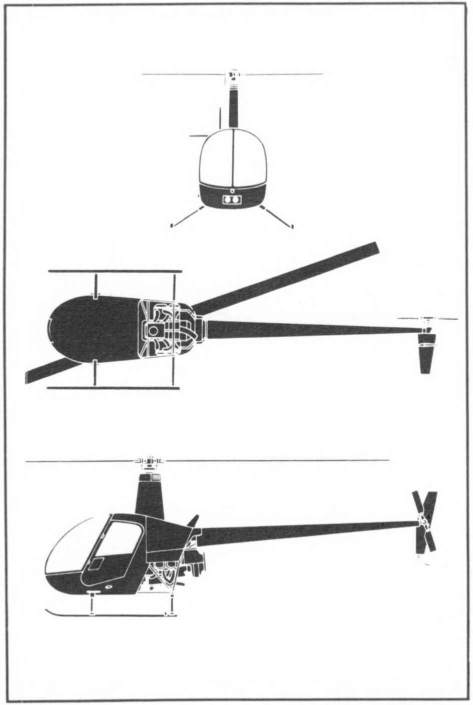


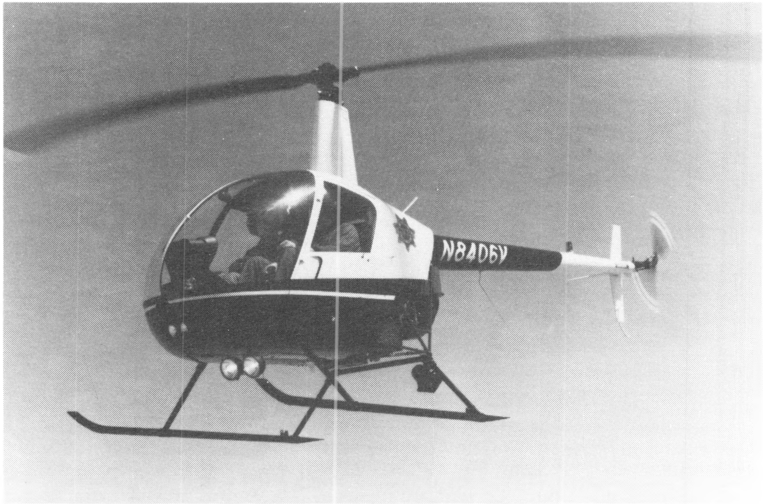
The basic Bell Model 47 first flew in 1945 and the first production models were ordered for service with the US Army and Navy. Many versions have subsequently been built for military service in a variety of countries and a large number used by civil operators. The Model 47 was also built under licence in Italy as the Agusta-Bell 47 series and in the UK by Westland as the Sioux AH.1. All models from the 47D onwards have the familiar 'goldfish bowl' cabin and open tail-boom. Subsequent variants had engines of differing powers, but the main design change came with the Model 47H and Model 47J Ranger, which had a fully enclosed fuselage and cabin. These changes apply also to Agusta-built aircraft. *Countries of origin:* Italy/UK/USA. *Silhouette:* Bell 47G2. *Picture:* Bell 47G3 Sioux.

Robinson R22 Alpha

Confusion: Raven

Power: 1 × Lycoming piston engine *Rotor dia:* 7.67m *Length:* 8.76m



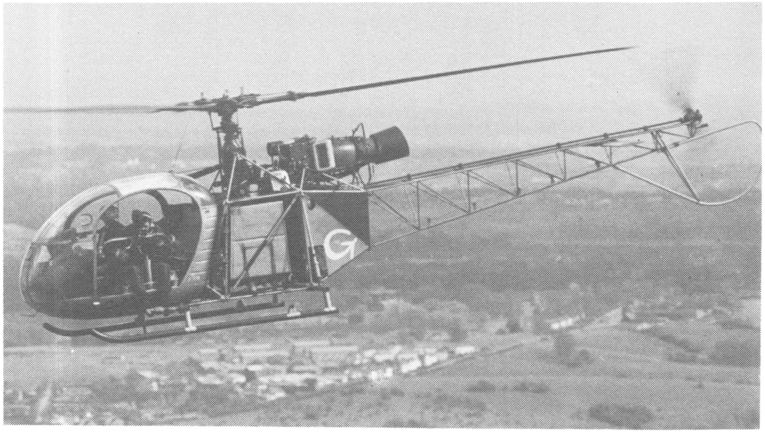


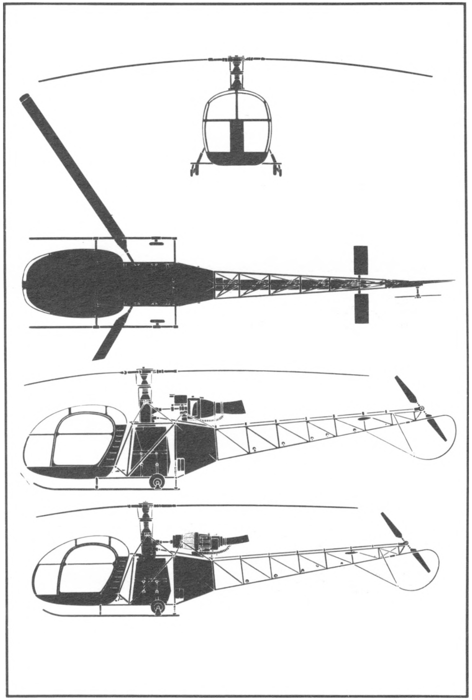
Over 1,600 Robinson R22 light utility helicopters have been built, largely for civil pilot training. One of the cheapest two-seaters on the market, the R22 has a top speed of 187km/h and cruises at 174km/h. Maximum range is 386km. The prototype R22 first flew in 1975. The current production model, the R22 Beta, has a higher-powered Lycoming 0-320-B2C engine. With floats it is known as the R22 Mariner. A new four-seat version is the R44 expected to be in production in 1993-94. *Country of origin:* USA.

Confusion: Bell 47, Alouette III

Aerospatiale Alouette II

Power: 1 × Artouste or 1 × Astazou turboshaft *Rotor dia:* 11.02m *Length:* 10.26m



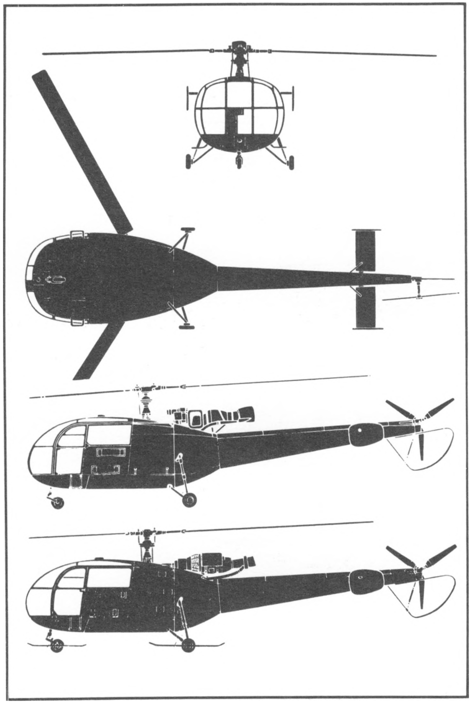


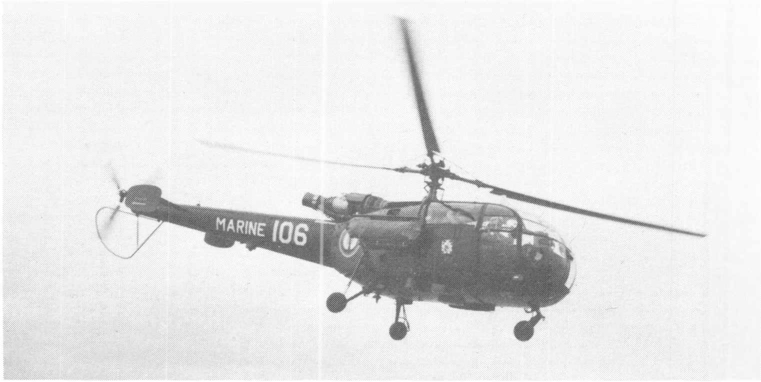
All the helicopters in this family are basically similar and differ principally in their powerplants. The prototypes were built as SE.3120s and powered by a Salmson 9 engine; production types were designated SE.3130 and subsequently SE.313B Alouette II. Production totalled more than 900. The Astazou-powered SA.318C first flew in 1961 and when production ended in 1975 more than 350 had been built. The SA.315B Lama is an Artouste-powered version built to an Indian requirement, while the Cheetah is a licence-built version produced by HAL for the Indian Army. The Lama has been sold to operators in more than 20 countries. *Country of origin:* France. *Main silhouette:* SA.318C; *lower side view:* SE.313B. *Picture:* SA.318C.

Aerospatiale Alouette III

Confusion: Alouette II, Gazelle

Power: 1 × Artouste or 1 × Astazou turboshaft *Rotor dia:* 11.02m *Length:* 10.03m



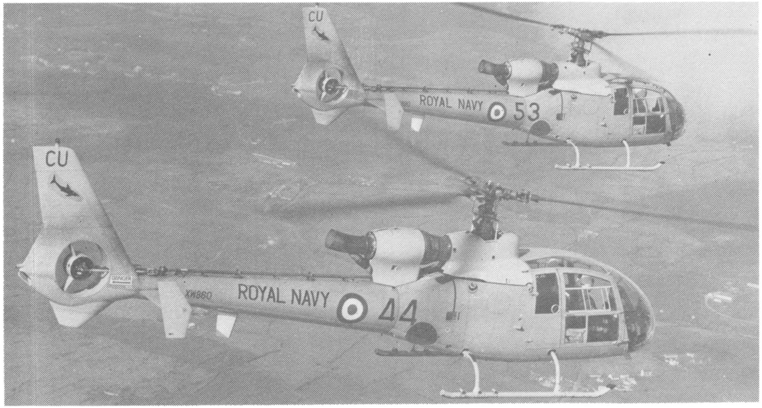


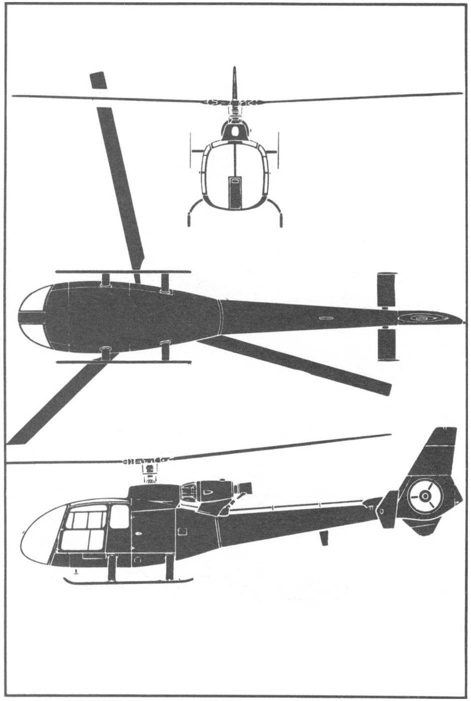
The Alouette III series was derived from the Alouette II, offering a larger cabin, more powerful engine and improved performance. The type first flew in 1959 as the SE.3160, later production aircraft were designated SA.316B. Some 1,455 Alouette IIIs of all versions had been delivered to a number of operators in more than 70 countries by the time production ceased in 1985. The SA.316B has also been built under licence in India as the Chetak, and in both Switzerland and Romania. The SA.319B, a direct development of the SA.316B, is powered by a 870shp Turboméca Astazou engine. First flown in 1967, the type was also produced in Romania. Powered by an 870shp Turboméca Artouste turboshaft, the SA.316B cruises at 185km/h, while the SA.319B cruises at about 190km/h. *Country of origin:* France. *Main silhouette:* SA.316B; *lower side view:* SA.319B.

Confusion: Alouette III, Dauphin

Aerospatiale SA.341/342 Gazelle

Power: 1 × Astazou turboshaft *Rotor dia:* 10.5m *Length:* 11.97m



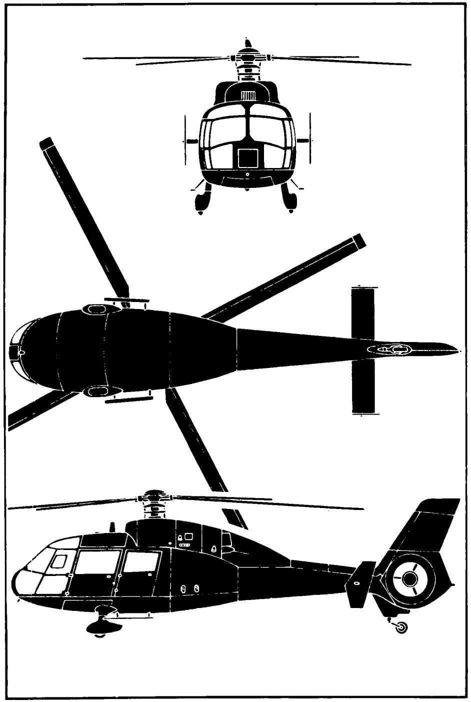


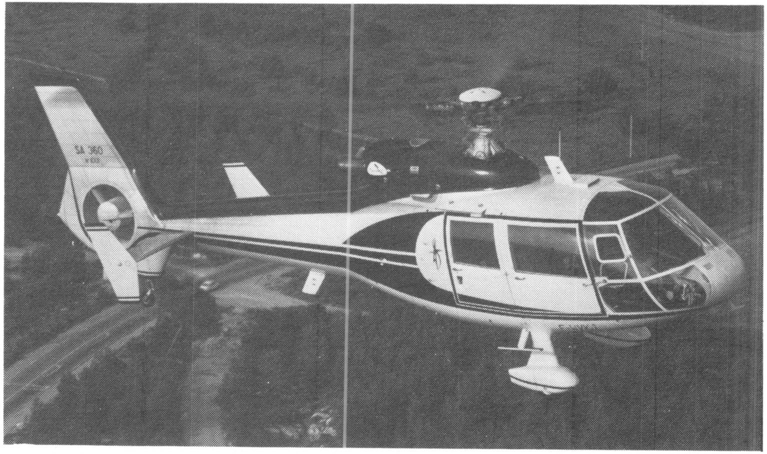
This five-seat light helicopter first flew in 1967, powered by an Astazou III engine. The first production aircraft flew in 1971, differing from the prototype in having a longer cabin, larger tail unit and uprated Astazou IIIA. Eleven versions of the Gazelle have been built to date: the SA.341B, 341C, 341D and 341E for the British armed forces; the SA.341F for the French Army; the SA.341G and SA.342J for civil operators; SA.341H military export version; and the SA.342K, 342L and 342M military versions. Under an Anglo-French agreement signed in 1967, Gazelles were produced jointly with Westland Helicopters and are also built under licence in Yugoslavia and Egypt. Total sales have exceeded 1,250. *Country of origin:* France. *Silhouette:* SA.341. *Picture:* Gazelle HT.2.

Aerospatiale SA.360 and SA.361H Dauphin

Confusion: Gazelle

Power: 1 × Astazou turboshaft (SA.360 and SA.361) or 2 × Arriel turboshafts (SA.365) *Rotor dia:* 11.5m *Length:* 13.2m



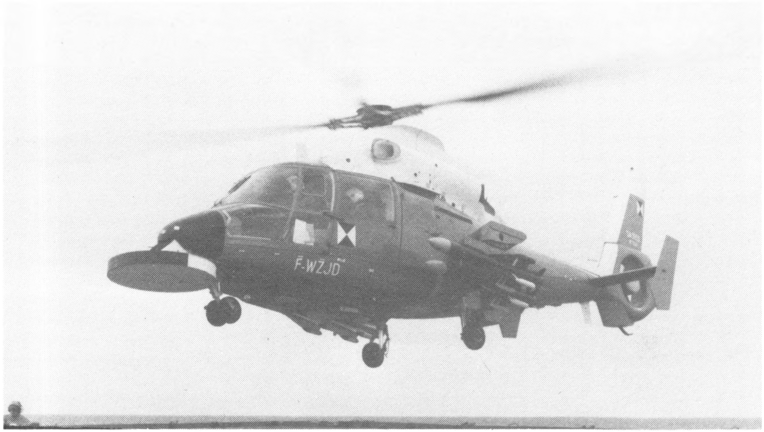


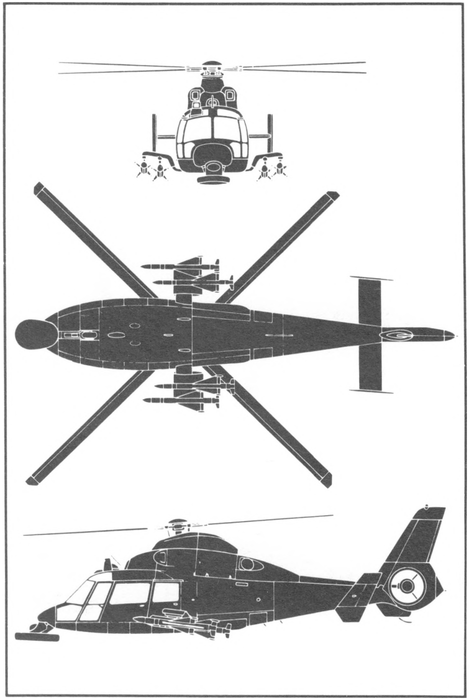
Developed as a replacement for the Alouette III, the SA.360 Dauphin first flew in 1972 powered by a 980shp Turboméca Astazou XVI turboshaft. Production aircraft are powered by the 1,050shp Astazou XVIIIA. The SA.361H Dauphin is similar in most respects to the SA.360 but is powered by a 1,400shp Astazou XXB. The SA.365C Dauphin 2 is marginally larger than the standard Dauphin and differs principally in having two 650shp Turboméca Arriel engines and accommodation for up to 13 persons. Cruising speed for both versions is 275km/h. *Country of origin:* France. *Silhouette:* SA.360. *Picture:* SA.360

Confusion: SA.365C, Gazelle

Aerospatiale SA.365 Dauphin 2

Power: 2 × Arriel turboshafts *Rotor dia:* 11.93m *Length:* 11.44m



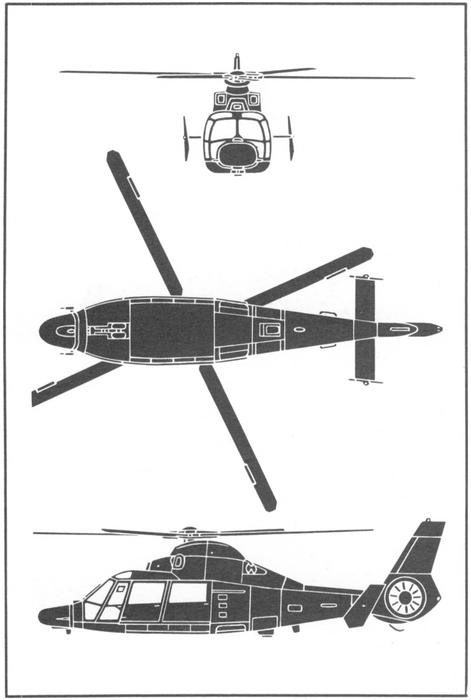


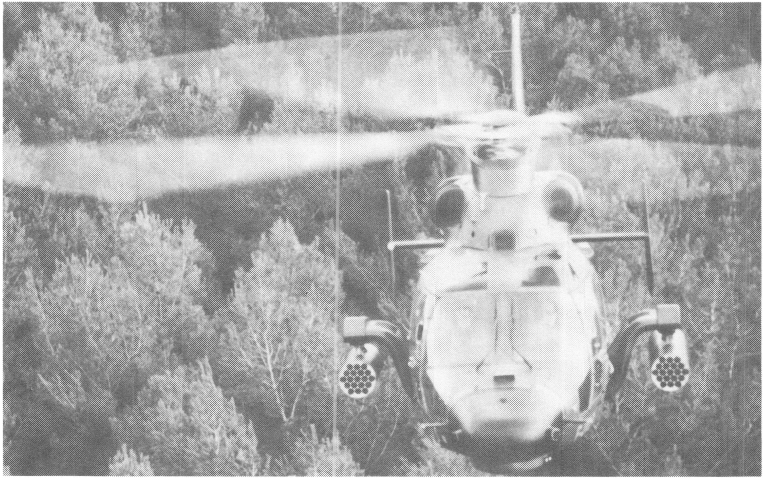
Confusing because it is also called Dauphin 2, the 365N is in fact a major redesign compared with the 365C, with extensive use of composite materials and a retractable undercarriage. The 365N is a 10/14-seat transport, 365M a military utility vehicle and 365F a maritime version for anti-shipping and search and rescue. The SA.366, with two Avco Lycoming turboshafts, has been ordered by the US Coast Guard for short-range recovery. In this form it has the US designation HH-65A Dolphin. A multi-role military development is the SA.365M. The 365N is being produced under licence in China and over 500 of the variants have been built. *Country of origin:* France. *Silhouette and picture:* SA.365F.

Aerospatiale AS 565 Panther

Confusion: Dauphin 2

Power: 2 × Arriel turboshafts *Rotor dia:* 11.94m *Length:* 13.68m



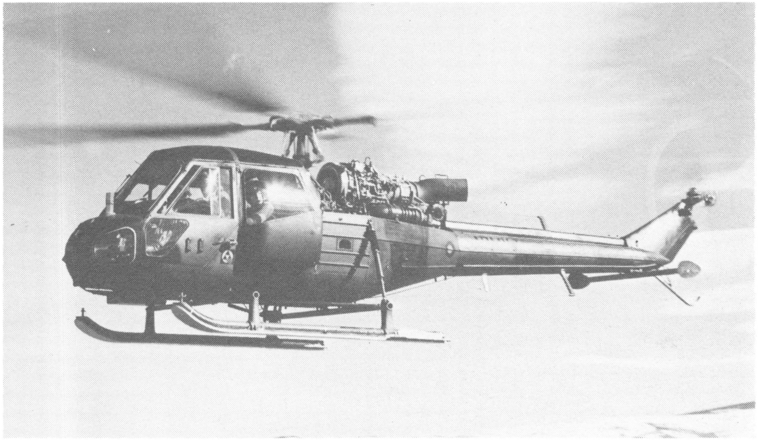


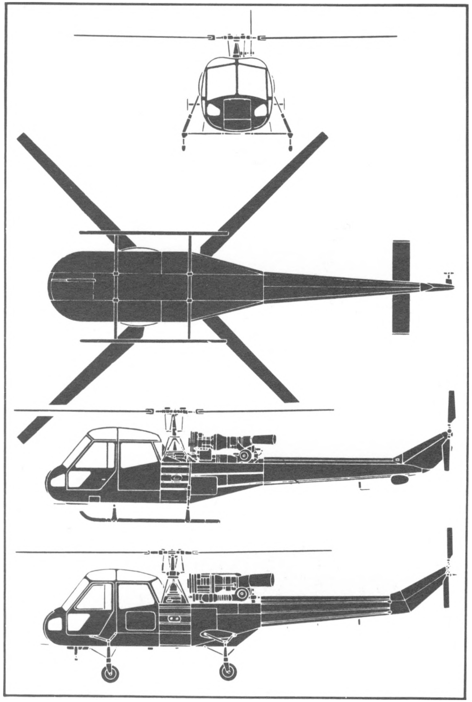
Produced in naval and army/air force forms, the AS 565 Panther is a derivative of the Dauphin 2. The naval versions are designated AS 565MA (unarmed) and AS 565SA (armed), while army/air force variants are AS 565AA (armed), AS 565UA (utility) and AS 565CA (anti-tank). In navy service the Panther is for rescue/sea surveillance and anti-submarine work. For army use, eight or ten troops can be carried, while for close support armament includes rockets, gun pod or guided missiles. Maximum cruising speed, at sea level, is 278km/h. *Country of origin:* France. *Picture:* AS 565AA.

Confusion: Bell 204

Westland Scout/Wasp

Power: 1 × Nimbus turboshaft *Rotor dia:* 9.83m *Length:* 9.24m



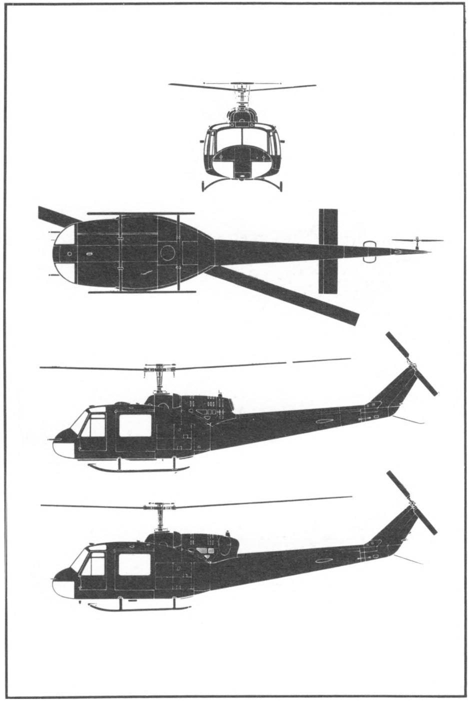


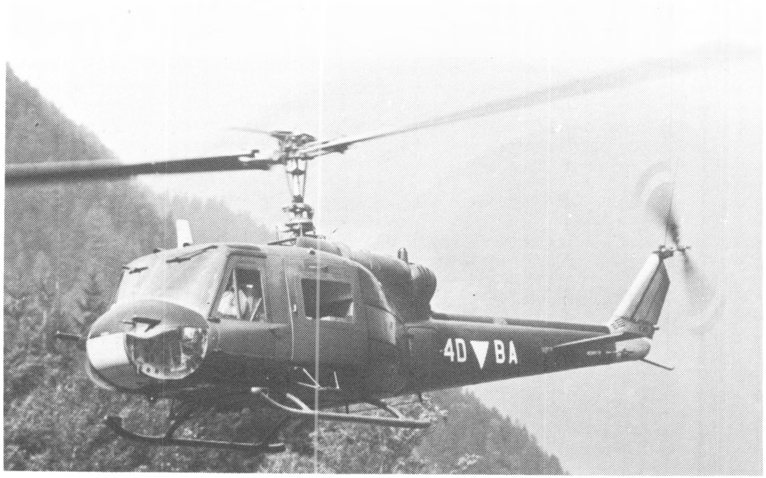
Derived from the Saunders-Roe P.531, which first flew in 1958, the Scout army helicopter is fitted with a skid undercarriage. The British Army took delivery of about 150 Scouts of which 30 are still operational. The Wasp naval version, distinguished by its wheeled undercarriage, was first delivered to the Royal Navy in 1963. Wasps are used in New Zealand, Indonesia and Malaysia. Powered by a 710shp Rolls-Royce Nimbus turboshaft, the Scout cruises at about 210km/h and the Wasp at 175km/h. *Country of origin:* UK. *Main silhouette:* Scout; *lower side view:* Wasp. *Picture:* Scout.

Bell Model 204/UH-1 Iroquois

Confusion: Scout/Wasp, Bell 205, Bell 212

Power: 1 × T53 turboshaft *Rotor dia:* 13.41m *Length:* 11.7m



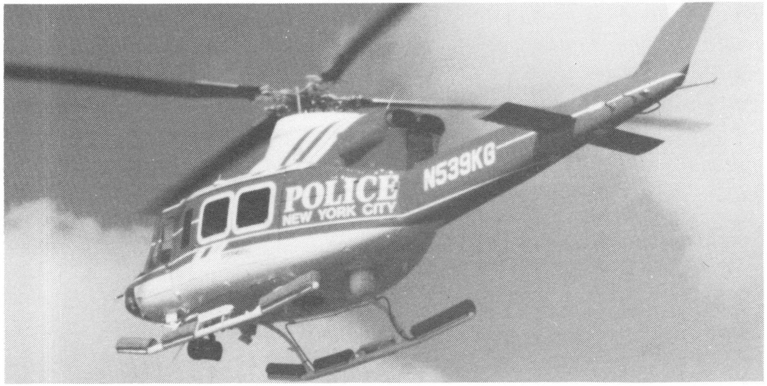


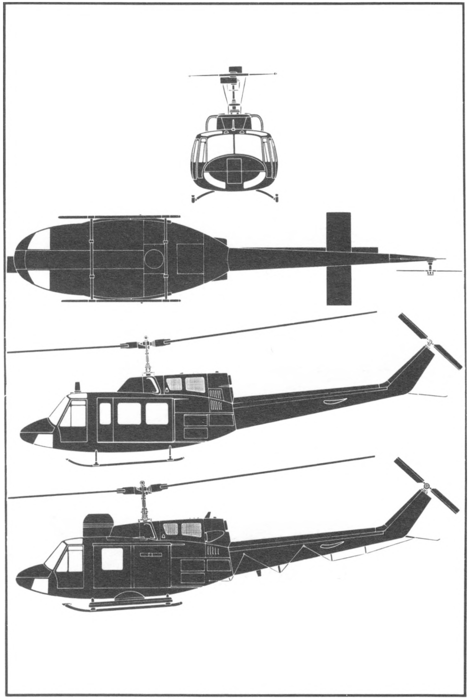
The Model 204 and UH-1 Iroquois belong to a family of commercial utility and military general-purpose helicopters derived from the XH-40, which first flew in 1956. The civil and military versions are essentially similar in external appearance and differ principally in their internal equipment. A licence-built version, the Agusta-Bell 204B, was in production in Italy between 1961 and 1974. Italian-built aircraft were fitted with the Rolls-Royce Gnome turboshaft. *Countries of origin:* USA/Italy. *Main silhouette:* Bell 204; *lower side view:* Agusta-Bell 204B. *Picture:* Agusta-Bell 204B.

Confusion: Bell 204, Bell 205

Bell Model 212/412 Model 212ASW

Power: 2 × PT6T turboshaft *Rotor dia:* 14.69m *Length:* 12.92m



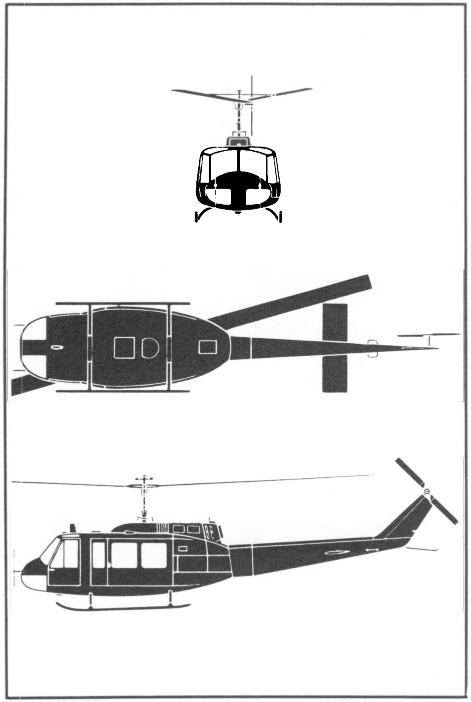


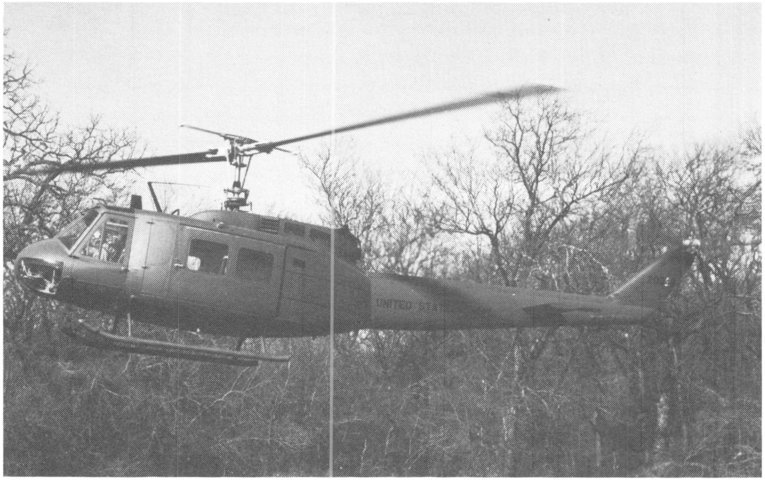
The Model 212 Twin Two-Twelve 15-seat military/civil utility helicopter first flew in 1968. Military aircraft are designated UH-1N in the USA and CH-135 in Canada. Powerplant is a 1,290shp Pratt & Whitney of Canada PT6T-3 Turbo Twin-Pac. The Agusta-Bell Model 212 is produced in Italy by Agusta, the 212ASW being for the Italian Navy, Turkey, Iran and a number of other countries. Main external difference is the large cylindrical radome mounted on top of the forward cabin roof. Armament options include two homing torpedoes, or depth charges, or wire guided missiles. The US 212 line was transferred to Canada in 1988. A four blade rotor development of the 212 is the 412 of which the latest version is the 412SP. The 412SP is in production in Indonesia. *Countries of origin:* USA/Italy/Canada. *Main silhouette:* Bell 212; *lower side view:* Agusta 212ASW. *Picture:* 412SP.

Bell Model 205/UH-1 Iroquois/Model 205A-1

Confusion: Bell 204, 212, 214

Power: 1 × T53 turboshaft *Rotor dia:* 14.63m *Length:* 12.77m



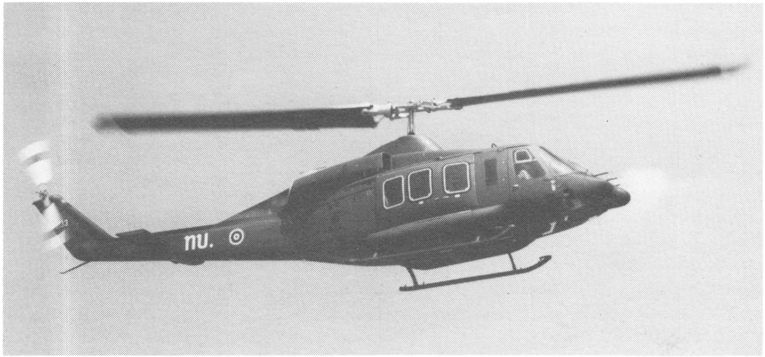


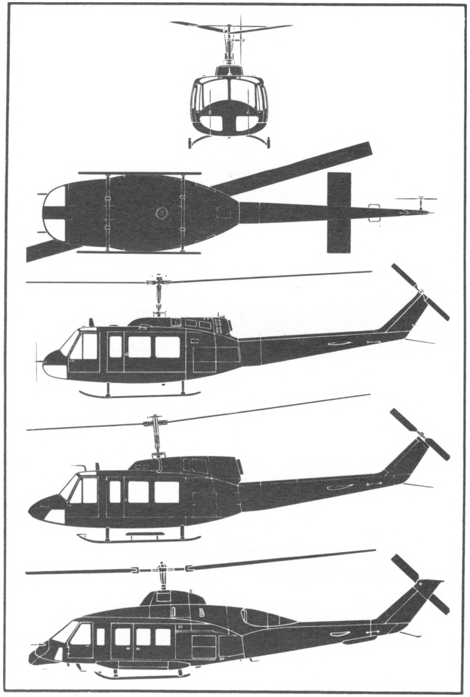
The Model 205 military general-purpose helicopter first flew in 1961. Basically similar to the earlier Model 204 Iroquois, it has a longer fuselage, an additional cabin window and equipment improvements. The Model 205A-1 15-seat commercial utility version of the Model 205 is powered by a 1,250shp Lycoming turboshaft. Both versions have also been built under licence in Italy by Agusta. Licence production is also undertaken in Japan (HU-1H). Cruising speed for all versions is about 200km/h. *Country of origin:* USA. *Silhouette:* UH-1D. *Picture:* UH-1H.

Confusion: Bell 205

Bell Model 214A/214B/214ST

Power: 1 × T55 or 2 × CT7 turboshaft *Rotor dia:* 15.24m *Length:* 12.92m



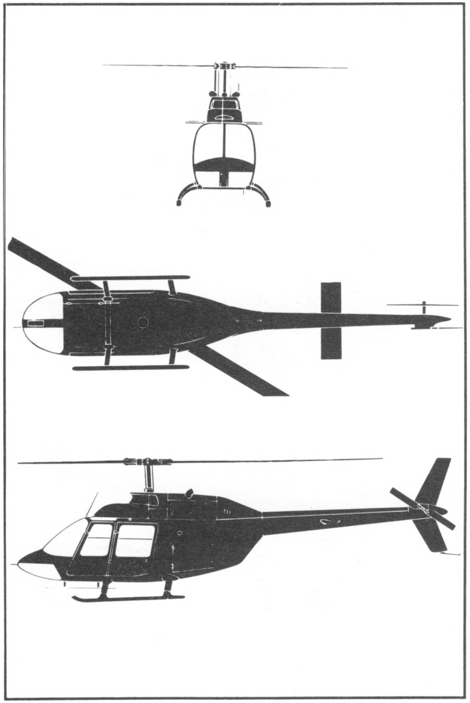


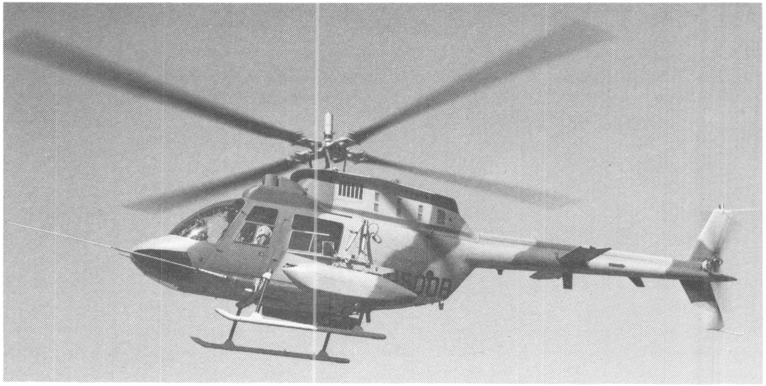
Initially produced in quantity for Iran as the Isfahan, the Bell 214A military utility helicopter was developed from the Bell 205 and first flew in 1974. Iran also ordered the 214C version for search and rescue. The civil version is the 214B BigLifter, which carries 14 passengers or can be used for cropspraying or firefighting. The latter version is known as the BigFighter. Typical 214 internal load is 1,814kg, while up to 3,175kg can be slung externally. The BigLifter differs from the 214A in having a fire-extinguishing system, push-out escape windows and commercial avionics. Agusta has also built the 214A. Cruising speed is 259km/h and range 483km. Also produced was the 214ST Supertransport with two GE CT7 engines, longer fuselage and seating for up to 18 passengers. A total of 100 Supertransports were built before production ceased in 1990. *Country of origin:* USA. *Main silhouette:* Model 214; *middle side view:* Model 214B; *lower side view:* Model 214ST. *Picture:* Model 214ST.

Bell Model 206 JetRanger/OH-58 Kiowa

Confusion: Bell 206L, Lynx, BK 117

Power: 1 × Allison 250 turboshaft *Rotor dia:* 10.16m *Length:* 9.5m



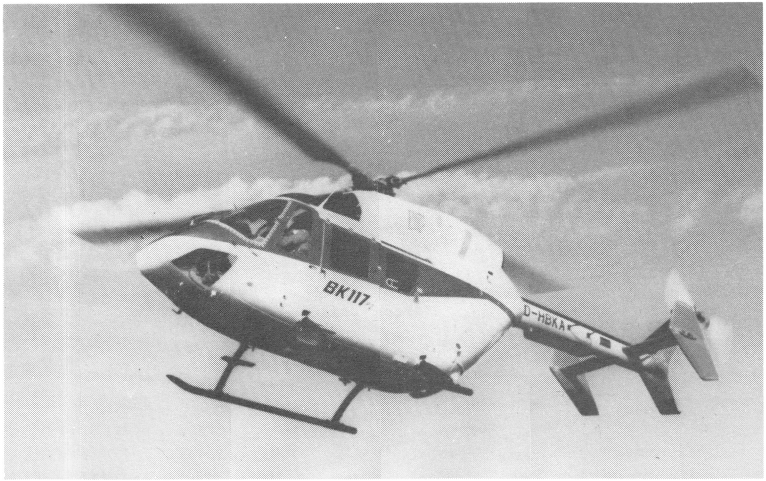


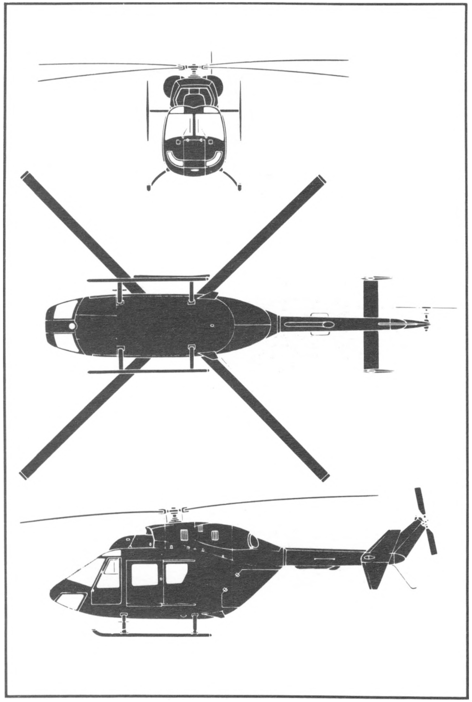
This general-purpose and light observation helicopter first flew in 1962. The original Model 206A JetRanger remained in production until 1972, when 660 had been built. Deliveries of the Model 206B JetRanger II, powered by a 400shp Allison turboshaft, began in 1971. A total of 1,619 were delivered. Current production model in Canada is the Model 206B JetRanger III, with an uprated engine of 420shp and enlarged tail rotor mast. The Kiowa is the military variant of the JetRanger, from which it differs in having a main rotor of slightly greater diameter and equipment changes for its military role. Bell is converting US Army Kiowas to OH-58D standard with mast-mounted sight. An armed version is known as the Warrior. A recent development is the light, simplified combat helicopter, the Model 406 Combat Scout. *Country of origin:* USA. *Silhouette:* OH-58A Kiowa. *Picture:* 406 Combat Scout.

Confusion: JetRanger, BO 108

MBB-Kawasaki BK 117

Power: 2 × LTS101 turboshafts *Rotor dia:* 11m *Length:* 13m

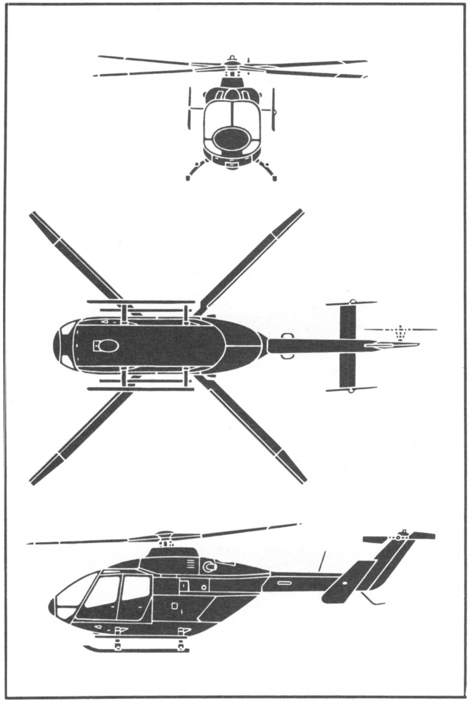


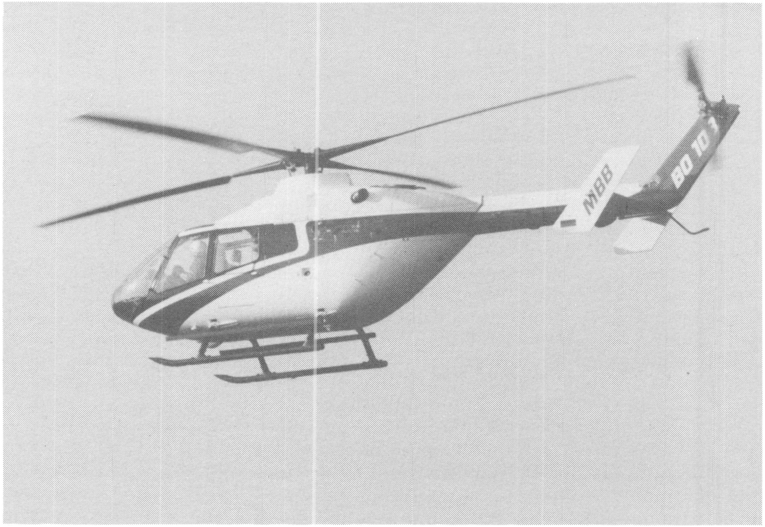


A joint development by Germany and Japan, the BK 117 seats seven passengers in executive form and up to 11 in high-density transport form. With a range of 545km, the BK 117 has a cruising speed of 234km/h. The first prototype flew in Germany in May 1979, followed by a second in Japan. There are two production centres, at Gifu in Japan and Munich in Germany. The BK117 is also being built in Indonesia as the NBK-117. Latest production version is BK 117B. Over 270 BK 117s have been delivered. *Countries of origin:* Japan/Germany.

MBB BO 108 *Confusion:* BO 105, BK 117

Power: 2 × Arrius turboshafts *Rotor dia:* 10m *Length:* 10.63m



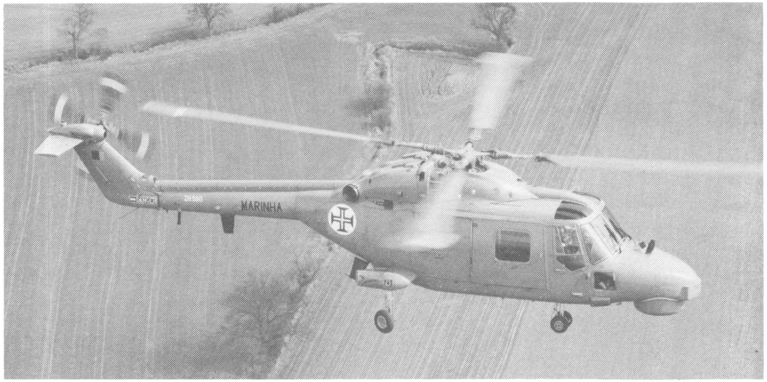


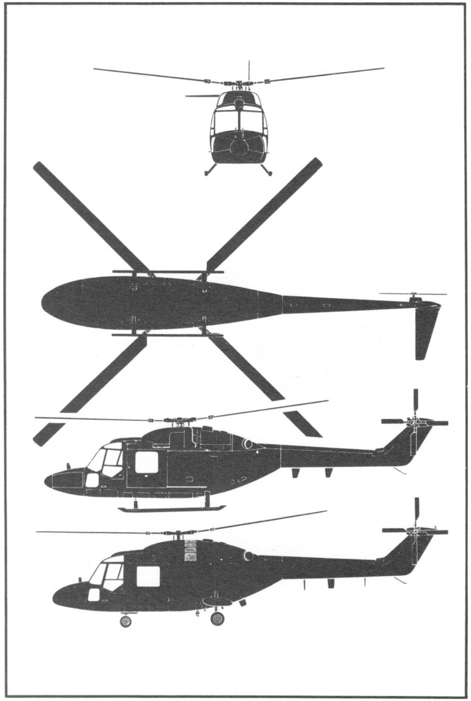
Now part of Eurocopter International, MBB has developed the BO 108 as the successor to the widely used BO 105 helicopter. The BO 108 first flew in October 1988 and deliveries are planned to start in 1995. A four/five-seater, the BO 108 has an economical cruising speed of 240km/h and a range of 800km. As an alternative to the Arrius engine, the Pratt & Whitney Canada PW206 will be offered. *Country of origin:* Germany.

Confusion: Bell 206/206L

Westland Lynx

Power: 2 × Gem or T800 turboshafts *Rotor dia:* 12.8m *Length:* 12.06m



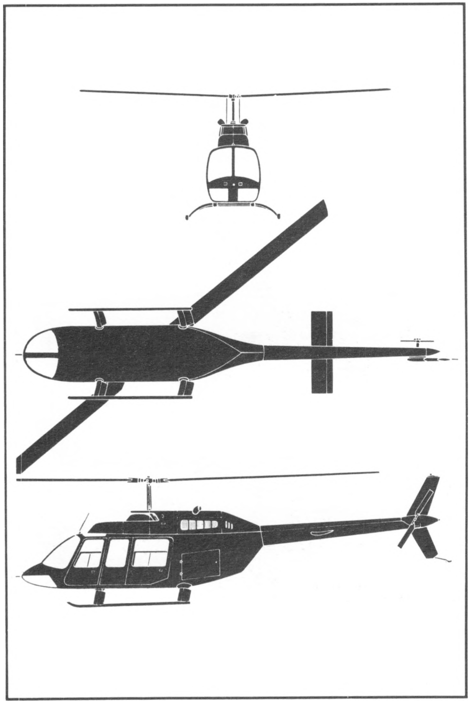


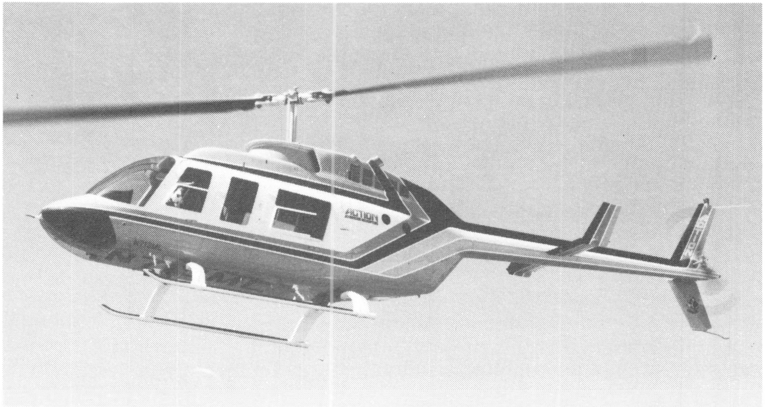
One of the three helicopters covered by the Anglo-French agreement of 1967, the Lynx first flew in 1971. Two main versions have been built, one for naval use and the second for the British Army. Equipped with a skid undercarriage, the Lynx AH.1 entered British Army service in 1977. Other British Army versions are AH.5/7/9. Naval versions are the Lynx HAS.2, HAS.3 and HAS.8 for the Royal Navy, and variants for the French Navy, the Royal Netherlands Navy and the navies of Argentina, Portugal, Germany and Brazil. The type has also been ordered by Qatar, Denmark and Norway. All naval aircraft and the new Lynx AH-9 are equipped with a wheeled undercarriage. The latest versions are the naval Super Lynx with higher powered engines and modified avionics, main and tail rotor and the Battlefield Lynx 800. *Countries of origin:* UK/France. *Main silhouette:* AH.1; *lower side view:* HAS.2. *Picture:* Super Lynx.

Bell Model 206L LongRanger

Confusion: Bell 206, Lynx

Power: 1 × Allison turboshaft *Rotor dia:* 11.28m *Length:* 10.13m



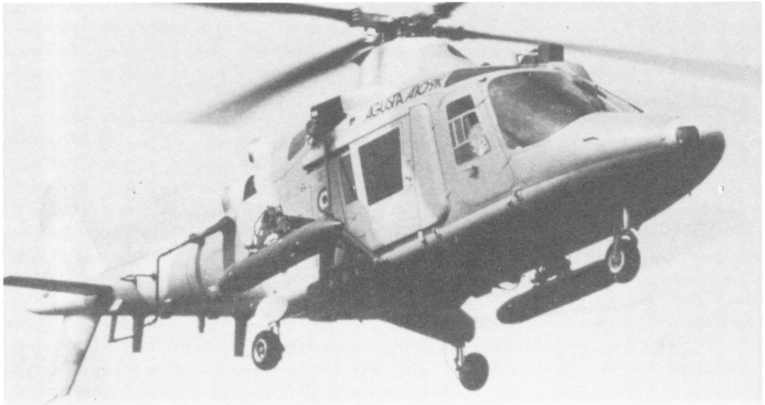


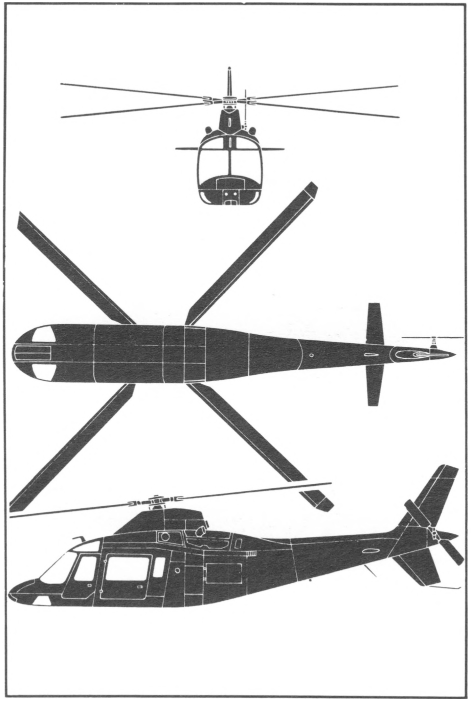
The Model 206L LongRanger seven-seat general-purpose helicopter first flew in 1974. Developed from the Model 206B JetRanger II, it has a longer fuselage with an additional pair of cabin windows. First deliveries were in 1975. Current production version is the LongRanger II. Double doors on the port side of the cabin provide an opening 1.52m in width, permitting the straight-in loading of stretchers or cargo. Two stretchers and two walking patients can be carried in the ambulance role. Powered by a 420shp Allison turboshaft, the LongRanger cruises at 210km/h over a sea-level range of 550km. Current production version, in Canada, is the Model 206L-3 LongRanger III. Over 1,100 LongRangers have been delivered. *Country of origin:* USA. *Silhouette:* Model 206L. *Picture:* LongRanger III.

Confusion: Bell 222

Agusta A109

Power: 2 × Allison 250 turboshafts or 2 Arriel turboshafts *Rotor dia:* 11m *Length:* 13.05m



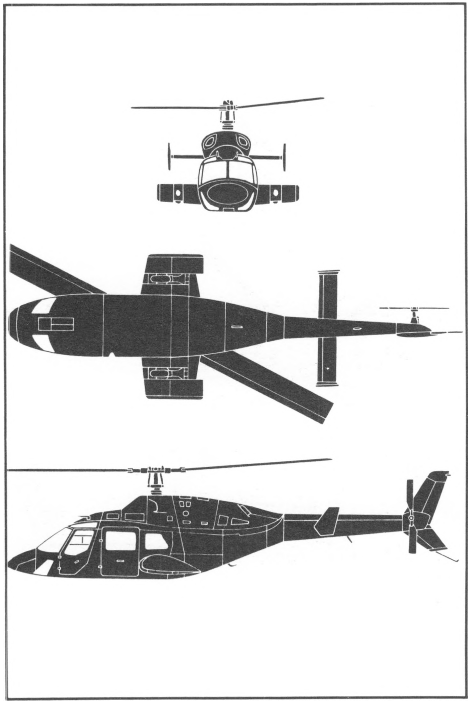


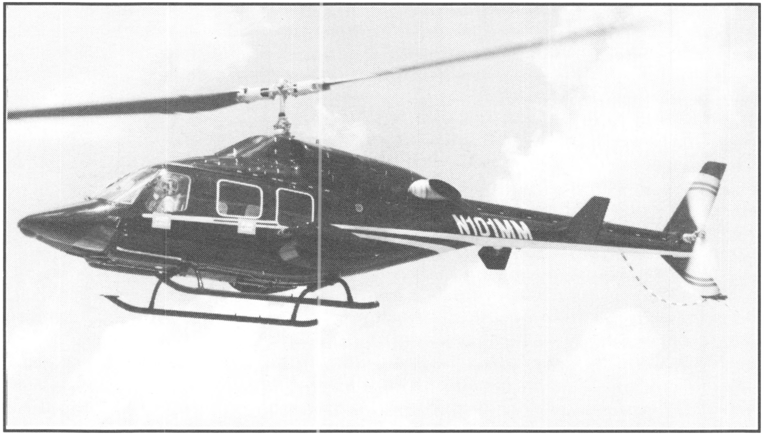
The Agusta A109A high-speed twin-engined helicopter is available in both civil and military versions. First flown in 1971, the type entered production in 1976. The A109 is powered by two 420shp Allison turboshafts and features a fully retractable undercarriage. Military versions, under construction for the armies and navies of several nations, are externally similar to the civil model, varying only in the armament and equipment carried. An improved Mk II version is now on the line. The military Mk II can perform the utility, ECM, ambulance, scout/attack/air defence and anti-tank roles. The A109 EOA is for observation work. A new military variant is the A109K with two Arriel engines, fixed undercarriage and longer nose. *Country of origin:* Italy. *Silhouette:* A109A. *Picture:* A109K.

Bell Model 222

Confusion: A109

Power: 2 × LTS101 turboshafts *Rotor dia:* 11.89m *Length:* 10.98m

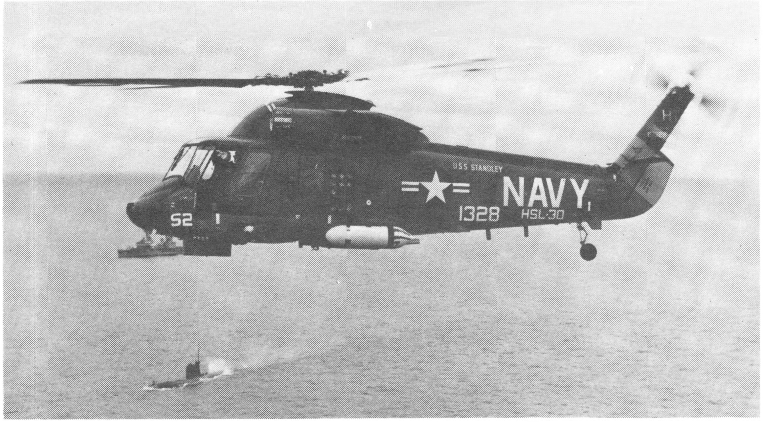


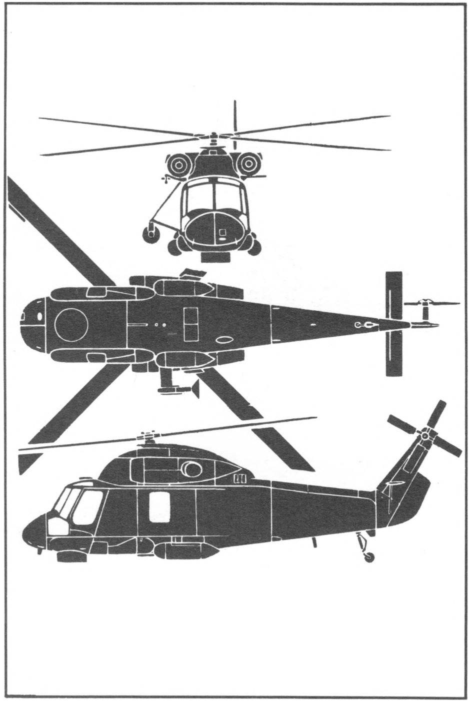


The Model 222 eight-seat light commercial helicopter first flew in 1976. The first commercial light twin-engined helicopter to be built in the USA, the Model 222 has a fully retractable undercarriage accommodated in two short-span sponsons set low on each side of the fuselage. The tailplane, mounted midway along the rear fuselage, is fitted with endplate fins. The type was produced in three versions: the basic Model 222B, the 222B Executive and the 222UT. The 222UT has a skid undercarriage. Powered by two 600shp Avco Lycoming turboshafts, the Model 222 cruises at 265km/h. Production of the 222 ceased in 1989 after 184 had been built. *Country of origin:* USA. *Picture:* Model 222UT.

Kaman H-2 Seasprite

Power: 2 × T58 or T700 turboshafts *Rotor dia:* 13.41m *Length:* 11.68m



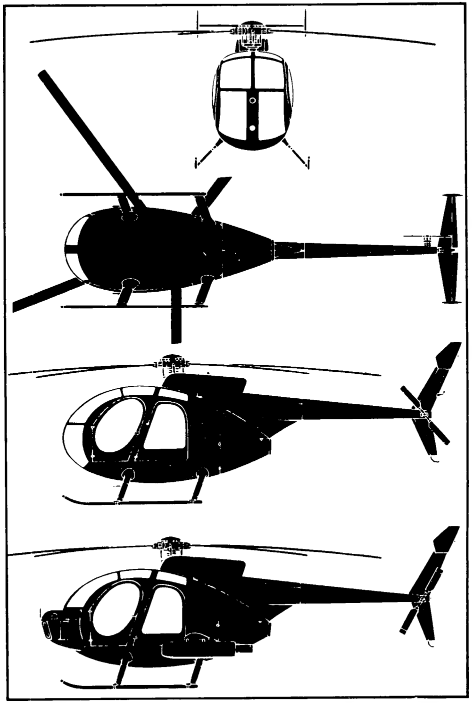


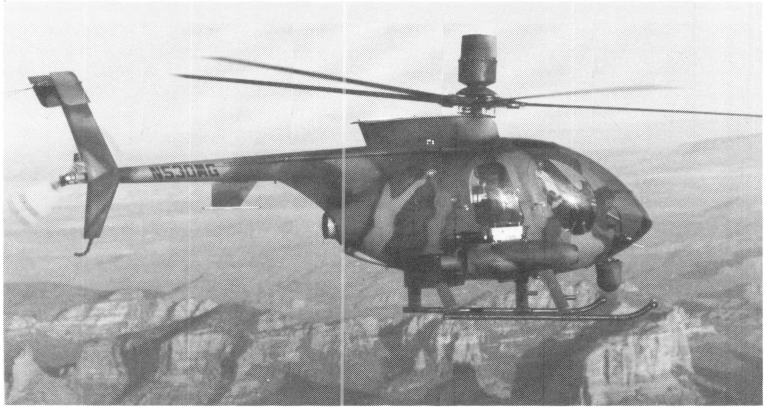
The H-2 Seasprite anti-submarine, anti-missile defence, search and rescue, observation and utility helicopter first flew in 1959. The original series was single-engined and, as the UH-2A, entered service with the US Navy in 1963. Current versions are twin-engined and include the HH-2D for coastal and geodetic survey; NHH-2D test aircraft. SH-2D LAMPS anti-submarine and utility aircraft; and SH-2F, a developed LAMPS version. All SH-2Ds were upgraded to SH-2F. Latest version is the SH-2G Super Seasprite with T700 engines and improved avionics. SH-2Fs are being upgraded to SH-2G for the US Navy. *Country of origin:* USA. *Silhouette:* SH-2F. *Picture:* SH-2D.

McDonnell Douglas Model 500

Confusion: BO 105

Power: 1 × Allison 250 turboshaft *Rotor dia:* 8.03m *Length:* 7.01m



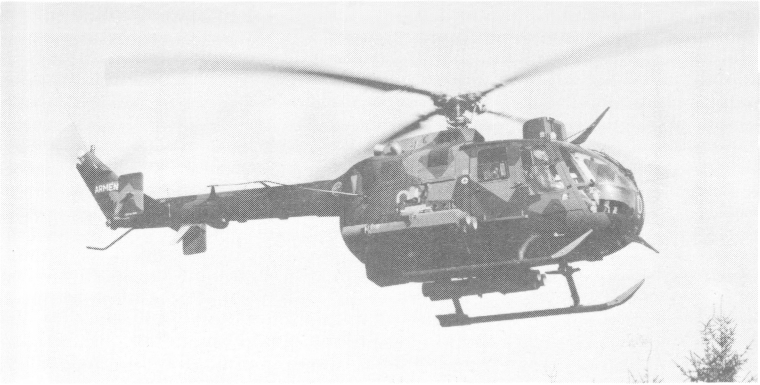


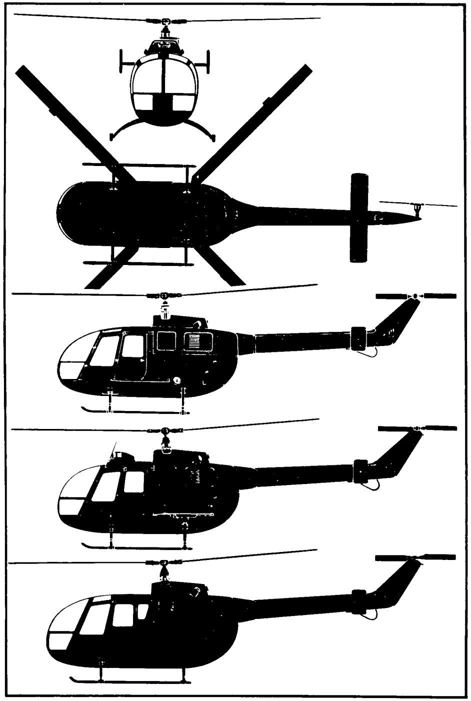
The Model 500 series is the counterpart of the US Army's OH-6 Cayuse. The 500 was originally a Hughes product. The Model 500 and Model 500C are identical apart from the installation of the uprated 400shp Allison turboshaft in the Model 500C. The Model 500D and Model M-D are distinguished by a small T-tail and five-blade rotor. The Model 500D is the basic commercial version, while the 500M-D Defender is the multi-role military variant. The 500E has a longer and more streamlined nose while the 530F Lifter is for high temperature/high altitude operations. Latest model is the 530MG with mast-mounted sight. The Nightfox is for night surveillance and the MH-6A for special operations. *Country of origin:* USA. *Main silhouette:* Model 500D; *lower side view:* 500MD Defender. *Picture:* 530MG.

Confusion: Hughes 500

MBB BO 105

Power: 2 × Allison 250 turboshafts *Rotor dia:* 9.84m *Length:* 11.86m



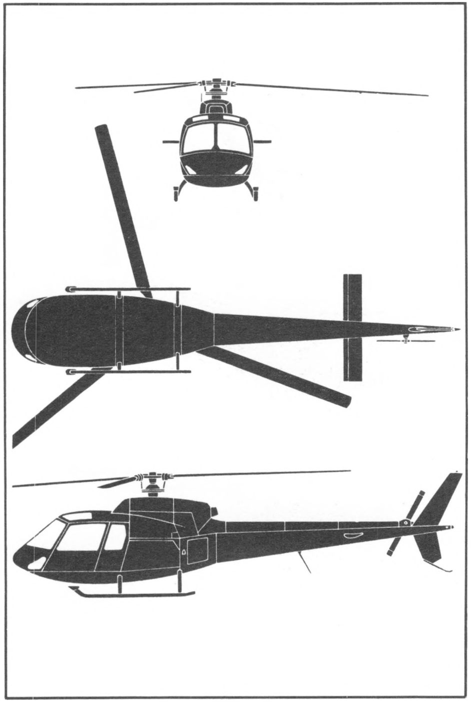


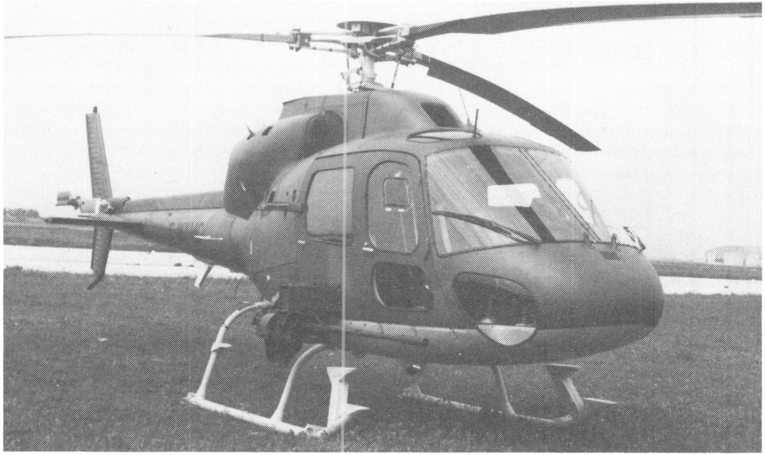
The MBB BO 105 five-seat light utility helicopter first flew in 1967. A number of different versions have been built, but all are essentially similar in external appearance. Original standard production model was the BO 105C, powered by two 400shp Allison turboshaft engines. These were succeeded in 1975 by the BO 105CB, powered by two 420shp Allison turboshaft engines and incorporating strengthened rotor gearing. Other versions include the BO 105CBS with longer fuselage, BO 105M, BO 105P (PAH-1) military version armed with six HOT missiles; the BO 105M (VBH) light observation helicopter and the 105P (PAH-1) anti-tank variant. BO105LS is a version produced in Canada. By 1991 over 1,300 BO 105s had been delivered. *Country of origin:* Germany. *Main silhouette:* BO 105CB; *middle side view:* BO 105P; *bottom side view:* BO 105CBS. *Picture:* BO 105P (PAH-1).

Aerospatiale AS350/355 Ecureuil/AStar/TwinStar/Fennec

Confusion: FH-1100

Power: 1 × Arriel or 1 × LTS101 or 2 × Allison 250 turboshafts *Rotor dia:* 10.69m *Length:* 10.91m



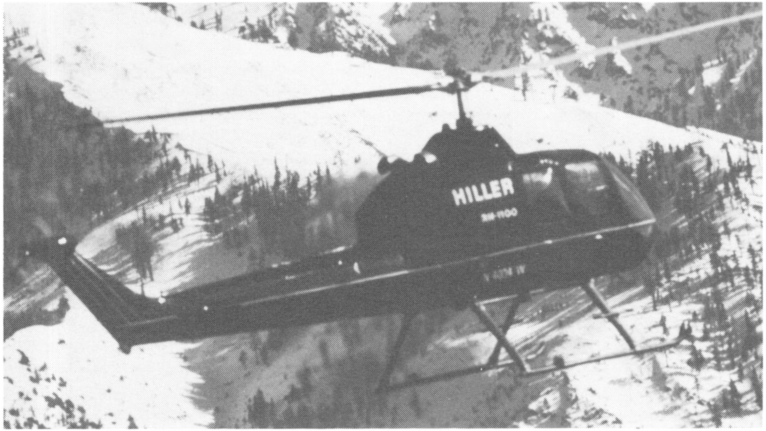


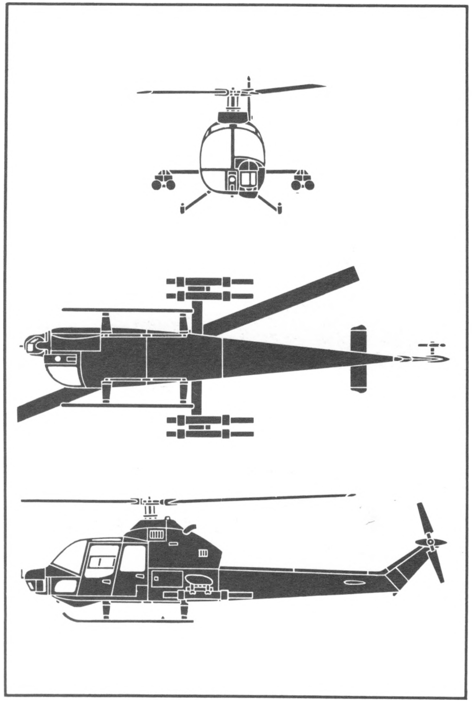
Designed as a successor to the Alouette II, the Ecureuil (Squirrel) first flew in 1975 as the Arriel-powered AS350B. The Lycoming-powered AS350C AStar was intended for the US market alone, with the AS350B available elsewhere. Accommodation is provided for six people. Performance of the two versions is similar, cruising speed being 235km/h. A twin-engined version is known as the TwinStar (AS355E) in the USA and the Ecureuil 2 (AS355F) elsewhere. The 355N has two TM319 engines. A further military version is the AS355M. From 1990 AS355Ms became known as the AS555 Fennec. *Country of origin:* France. *Silhouette:* AS350B Ecureuil. *Picture:* AS555 Fennec.

Confusion: AS 350B

Rogerson RH-1100

Power: 1 × T63 turboshaft *Rotor dia:* 10.79m *Length:* 9.08m



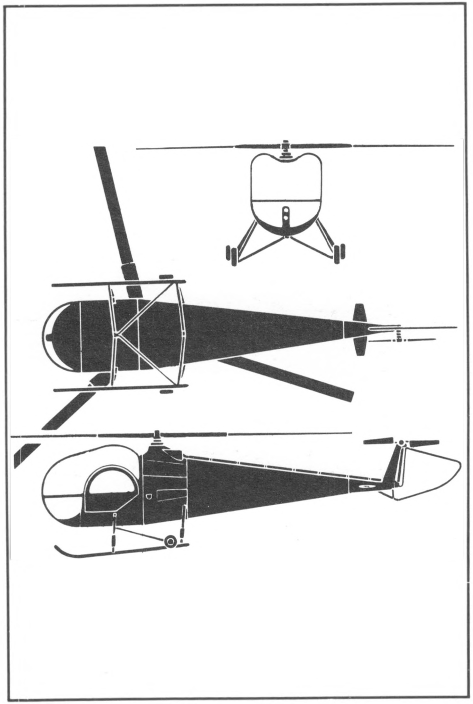


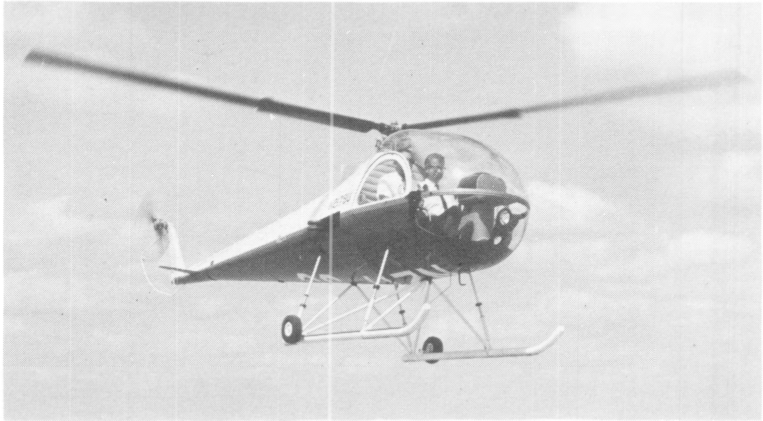
Originally known as the Hiller FH-1100, this utility helicopter was the first American light turbine-powered helicopter to enter the market, evolved from the Hiller OH-5A, which first flew in 1963. The FH-1100 was developed by Fairchild Industries, which had taken over Hiller and has in turn been taken over by Rogerson Aircraft Corp. Production eventually reached about 250, for both civil and military operators, and the type remains in small-scale service with the armed forces of a number of South American nations. Versions currently on offer by Rogerson, after the production line reopened, are the armed RH-1100M Hornet and the RH-1100. *Country of origin:* USA. *Silhouette:* RH-1100M Hornet. *Picture:* RH-1100M Hornet.

Brantly B-2

Confusion: Brantly 305

Power: 1 × Lycoming piston engine *Rotor dia:* 7.24m *Length:* 6.62m



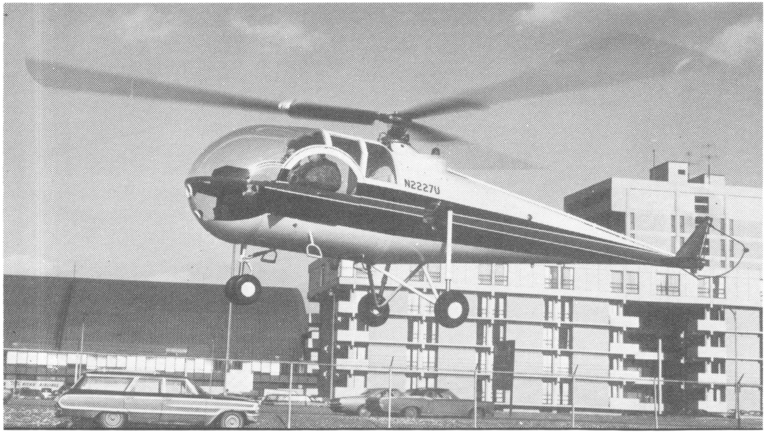


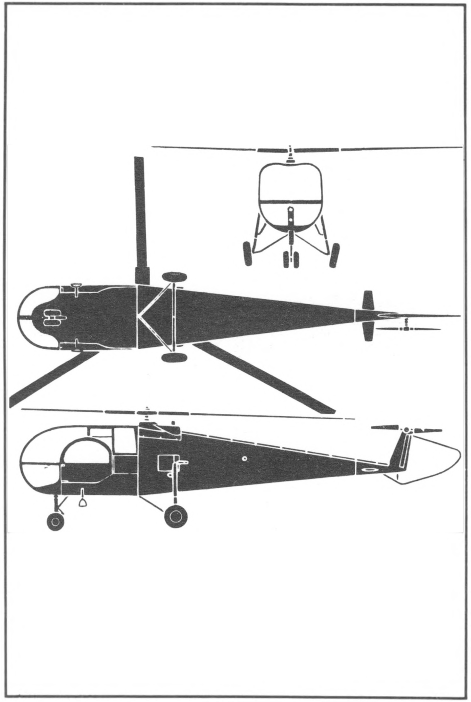
The Model B-2 two-seat light helicopter was first flown in 1953, though deliveries did not begin until 1959. The B-2A is an updated version with redesigned cabin and improved equipment. Main production version is the B-2B, which differs in having a fuel-injected engine for improved performance. Powered by a 180hp Lycoming piston engine, the B-2B has a cruising speed of 145km/h. Hynes Helicopter Inc put the H-12 (formerly B-2B) back into production as the Hynes H-2. Manufacture is now undertaken by Brantly Helicopter Industries USA Co as the Brantly B-2. *Country of origin:* USA. *Silhouette:* B-2B. *Picture:* B-2.

Confusion: Brantly B-2

Brantly 305

Power: 1 × Lycoming piston engine *Rotor dia:* 8.74m *Length:* 7.44m



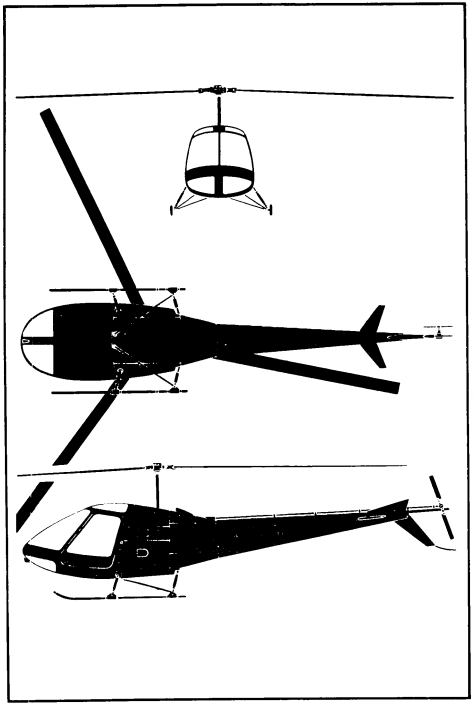


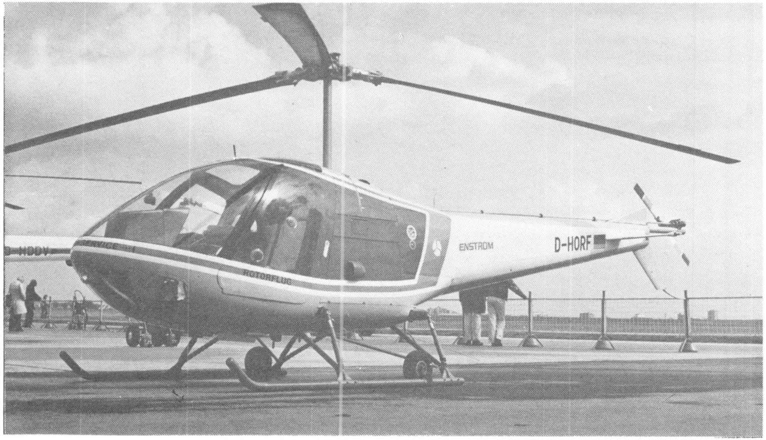
The Model 305 five-seat light helicopter first flew in 1964. Similar in configuration to the Model B-2B, the Model 305 is larger in all respects. Accommodation consists of two front seats side-by-side, with a rear bench seat for three persons. The Model 305 can be fitted with skid, wheel or float undercarriage. Powered by a 305hp Lycoming flat-six piston engine, the Model 305 cruises at about 175km/h. Manufacturing rights for the 305 were acquired by Brantly Helicopter Industries USA Co in 1989. *Country of origin:* USA.

Enstrom F-28/Model 280

Confusion: SH-4

Power: 1 × Lycoming piston engine *Rotor dia:* 9.75m *Length:* 8.94m

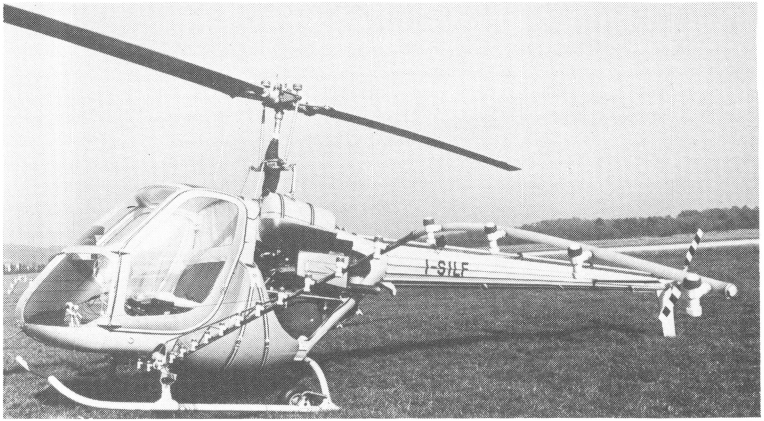


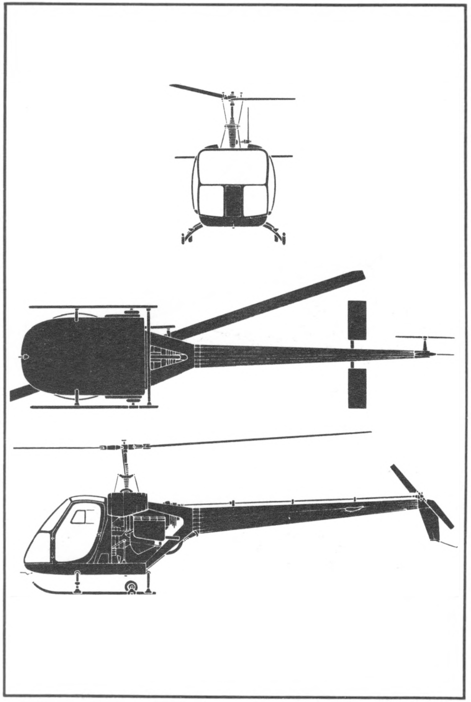


The original three-seat F-28 first flew in 1962 and entered production in 1965. During 1973 an advanced version of the basic Model F-28A was developed. Known as the Model 280 Shark, it is generally similar to the F-28A but has improved cabin contours and some small modifications to the tail area. There are a number of production versions: the F-28A powered by a 205hp Lycoming; Model 280 Shark; F-28C with turbocharged 205hp Lycoming; Model 280C; F-28C-2; and Models 280C, 280F and 280FX Hawk, 28F-P Sentinel and F-28F Falcon. *Country of origin:* USA. *Silhouette and picture:* Model 280.

Silvercraft SH-4

Power: 1 × Franklin piston engine *Rotor dia:* 9.03m *Length:* 7.65m



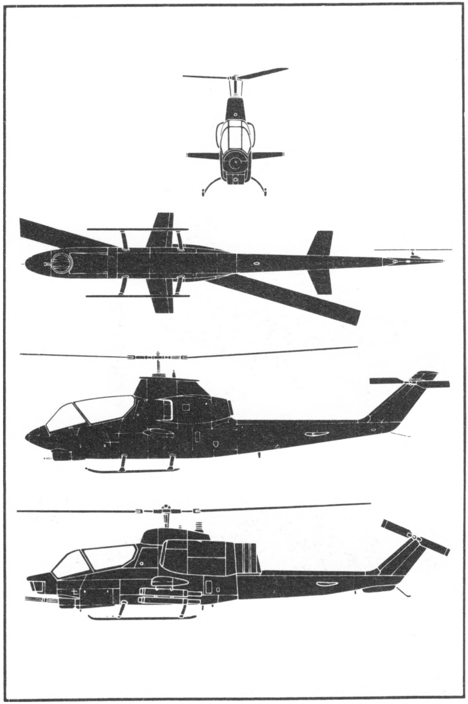


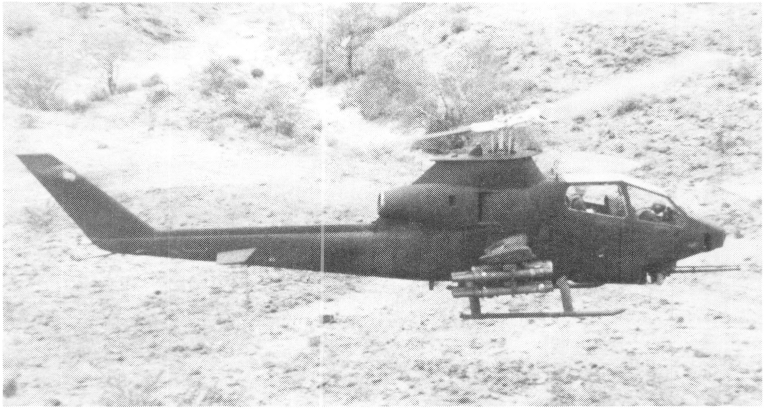
The SH-4 is a three-seat light helicopter designed for pilot training, utility, agricultural and similar roles. First flown in 1965, the type entered full-scale production in 1967 and a total of 50 were completed. Two versions were built: the standard SH-4 and the SH-4A agricultural version fitted with spraybars and two chemical tanks. Powered by a 235hp Franklin engine derated to 170hp, the SH-4 cruises at 130km/h. Other performance figures include a maximum level speed at sea level of 161km/h and a range of 320km. *Country of origin:* Italy. *Silhouette:* SH-4. *Picture:* SH-4A.

Bell AH-1 HueyCobra

Confusion: Hind

Power: 1 × T53 or 1 × T400 turboshaft *Rotor dia:* 13.41m *Length:* 13.59m

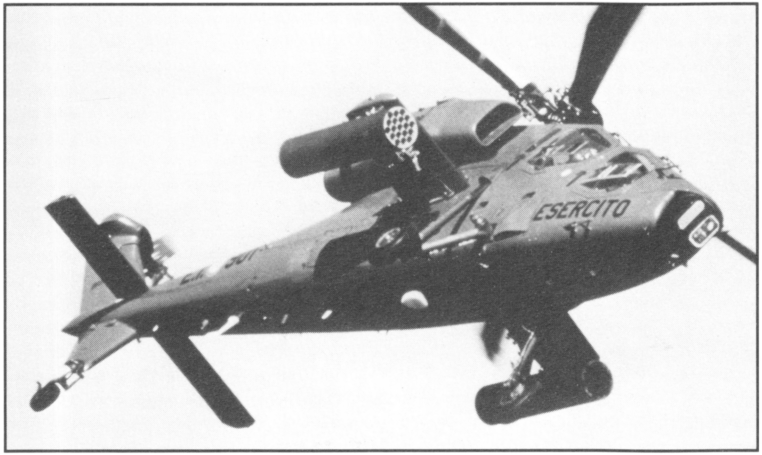


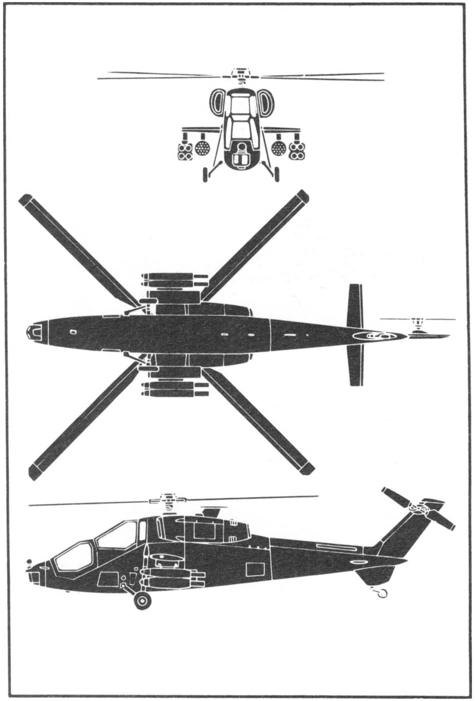


The Model 209 HueyCobra armed attack helicopter first flew in 1965. Four single-engined versions have been built to date: AH-1G, the original version for the US Army; AH-1Q anti-armour version with eight TOW missiles; AH-1R, as AH-1G but with a more powerful engine; and the AH-1S advanced version equipped with TOW missiles and featuring a flat-plate canopy. Some 690 AH-1Gs will ultimately be modified to AH-1S standard. AH-1S has a cruising speed of 225km/h. The twin-engined versions of the HueyCobra are the AH-1J SeaCobra, operated by the US Marine Corps, and the AH-1T Improved SeaCobra. Latest version is the AH-1W SuperCobra for use by the US Marine Corps. *Country of origin:* USA. *Main silhouette:* AH-1G; *lower side view:* AH-1W. *Picture:* AH-1S.

Agusta A129 Mangusta

Power: 2 × Gem or 2 × T800 turboshafts *Rotor dia:* 11.9m *Length:* 14.29m



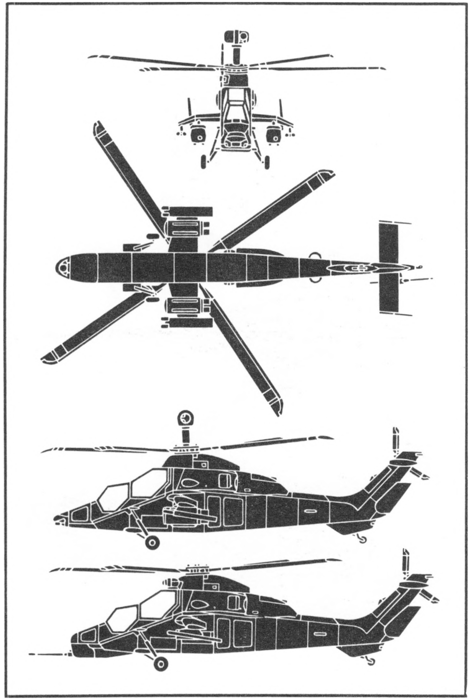


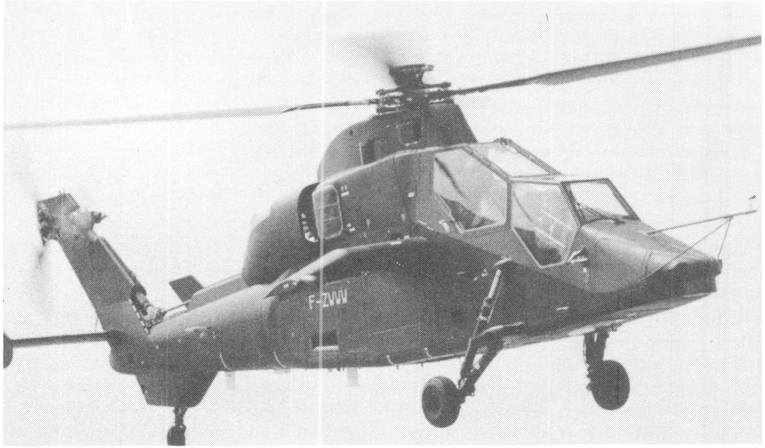
Deliveries of 60 A129 Mangusta anti-armour helicopters to the Italian Army began in 1990. Powered by two Rolls-Royce Gem engines, the A129 is a two-seater with a maximum speed of 259km/h and a maximum endurance of three hours. Armament is carried on four underwing mountings and can consist of eight TOW or six Hellfire anti-tank missiles. Other weapons include HOT missiles, two gun pods or rocket projectiles. The A129 first flew in September 1983. A light battlefield (LBH) version of the A129 is proposed. A version with T800 engines first flew in October 1988. *Country of origin:* Italy.

Eurocopter Tiger

Confusion: Mangusta

Power: 2 × MTR 390 turboshafts *Rotor dia:* 13m *Length:* 14m



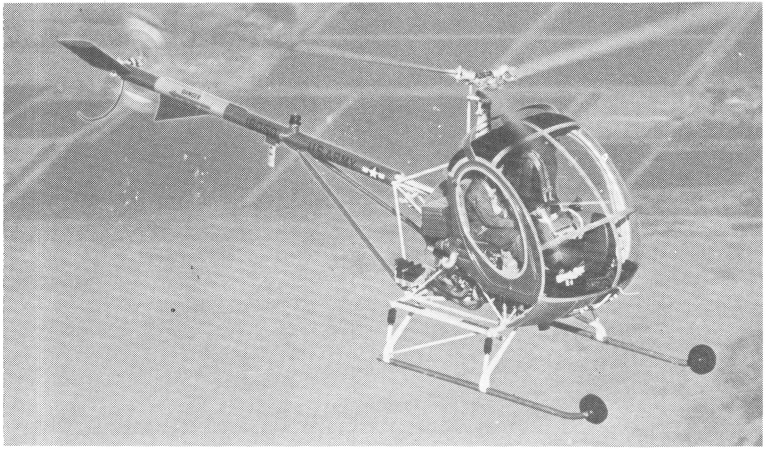


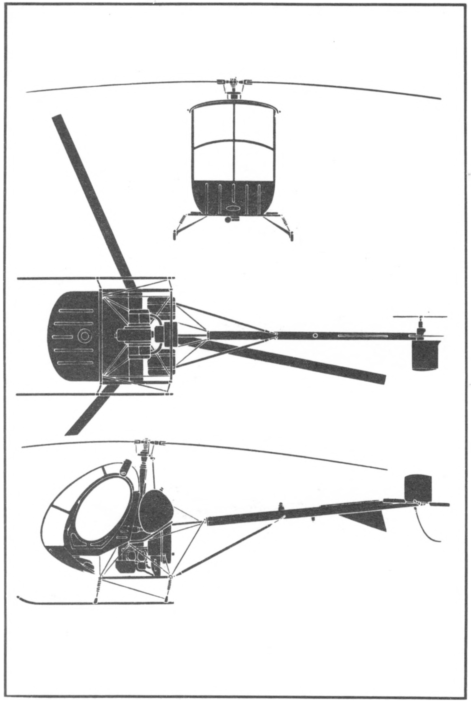
A two-seat anti-tank and ground support helicopter, the Tiger is produced jointly by Germany and France. There are two versions, the PAH-2/HAC for anti-tank work and the HAP for escort. The prototype flew in April 1991 and 427 are scheduled to be built, with deliveries from 1997 onwards. On the HAP armament will consist of a 30mm gun nose turret, air-to-air missiles and rockets, while PAH-2/HAC will carry anti-armour and air-to-air missiles. Cruising speed is up to 280km/h and endurance 2h 50min. *Countries of origin:* France/Germany.

Confusion: —

Hughes/Schweizer Model 269/300/300C/TH-55A Osage

Power: 1 × Lycoming piston engine *Rotor dia:* 7.71m *Length:* 6.8m



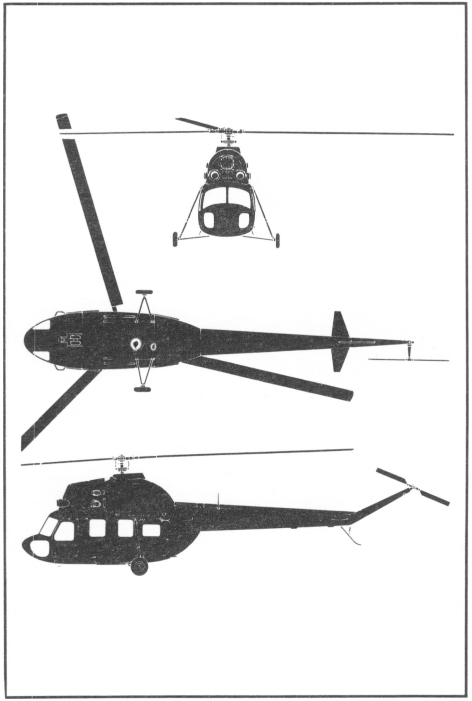


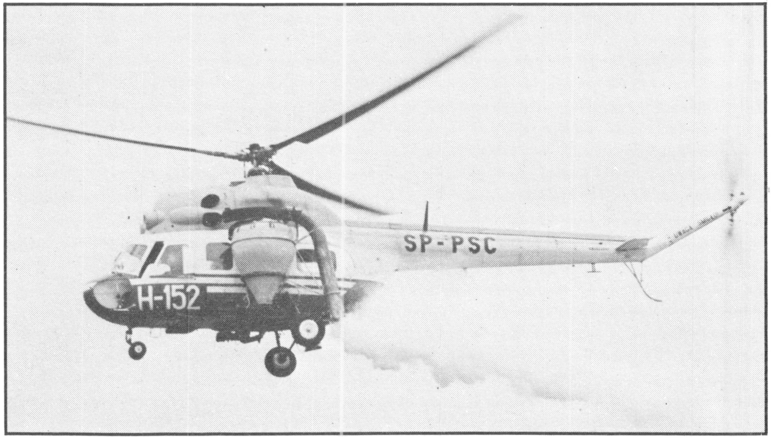
Design and development of the original Hughes Model 269 two-seat light helicopter began in 1955, with the first aircraft flying the following year. Production aircraft were designated Model 269A and by early 1968 nearly 1,200 had been built for both civil and military operators. The Model 300 was developed under the designation Model 269B, with production commencing in 1964. In 1964 the Model 269A was selected by the US Army as a light helicopter trainer and designated TH-55A Osage. Production was transferred to Schweizer in 1983 and deliveries of 300C continue. Police version is the 300C Sky Night. *Country of origin:* USA. *Silhouette:* Model 300. *Picture:* TH-55A.

Mil Mi-2 'Hoplite'

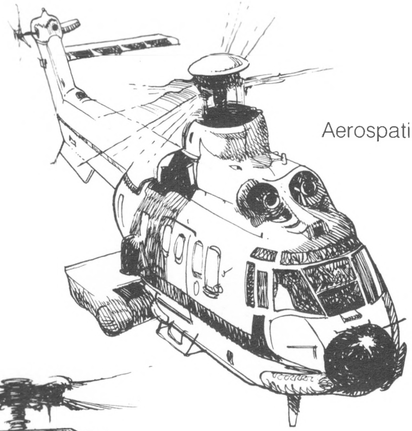
Confusion: Puma

Power: 2 × Isotov turboshafts *Rotor dia:* 14.5m *Length:* 17.42m

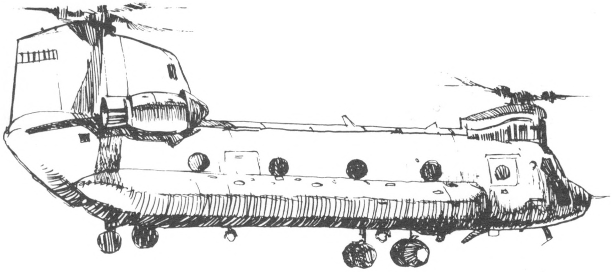




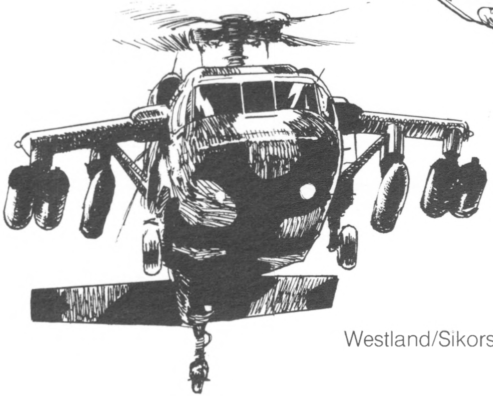
The Mi-2 twin-engined development of the Mi-1 was first announced in late 1961. Under an agreement signed in 1964, production and marketing were assigned to WSK-PZL Swidnik in Poland. Five thousand have since been built, mainly for export, with more than 2,000 being delivered to the CIS. The type is used by both civil and military operators and can be fitted out for a variety of roles, including ambulance, search and rescue, agricultural work, freight and transport of up to eight passengers. The agricultural version is called the Bazant. A number of air forces are equipped with the type. A development is the Allison 250-powered Kania. *Countries of origin:* Russia/Poland.



Aerospatiale AS 332L Super Puma



Boeing Vertol CH-47 Chinook

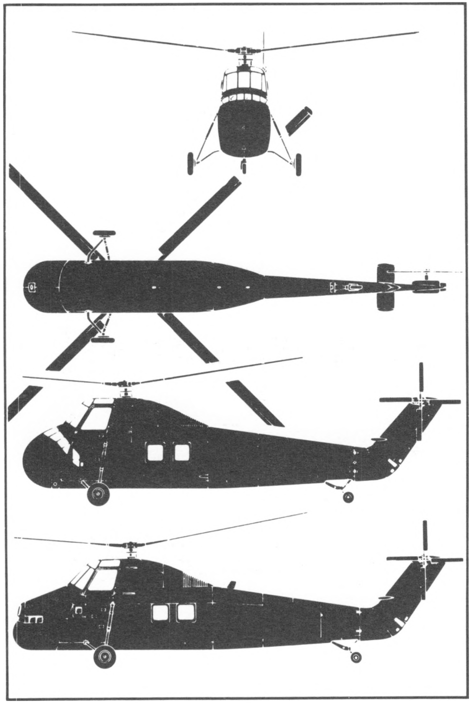


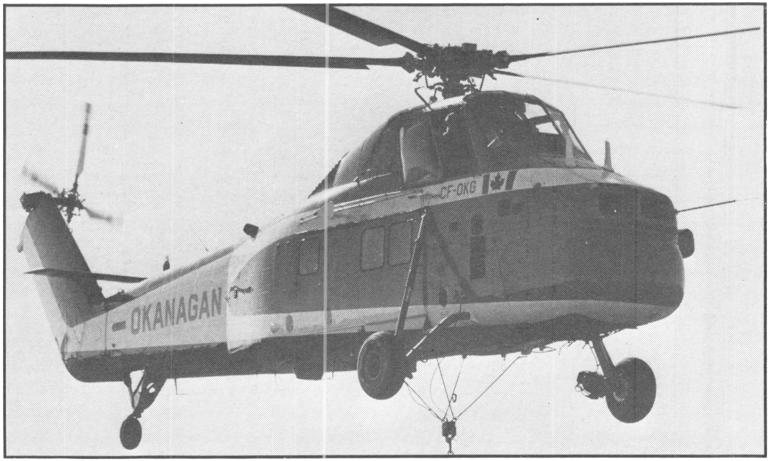
Westland/Sikorsky WS 70

Sikorsky S-58/S-58T

Confusion: S-55, Wessex

Power: 1 × R-1820 piston engine or 1 × PT6T turboshaft *Rotor dia* (S-58T): 18.9m *Length:* (S-58T): 16.69m



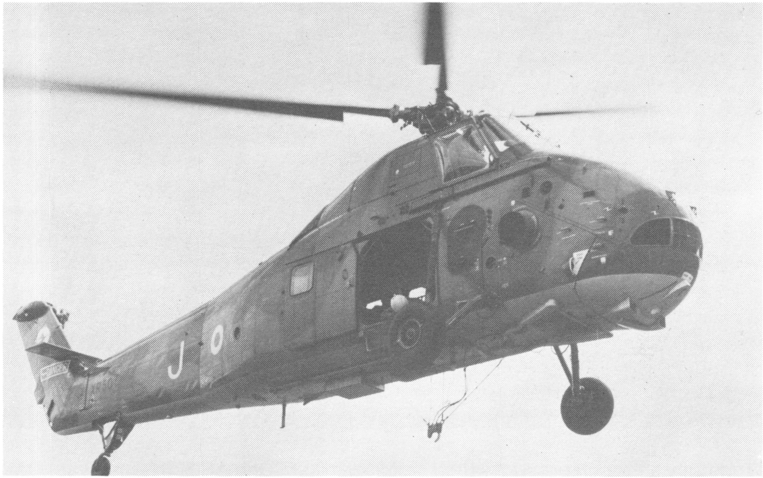


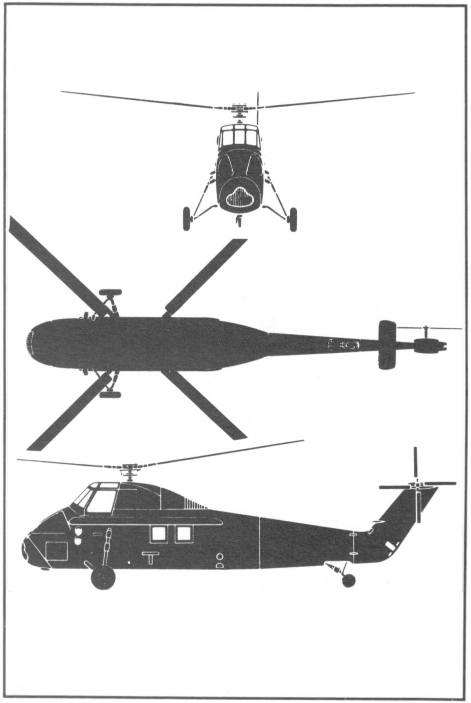
A general-purpose 18-passenger piston-engined military/civil helicopter, the S-58 has been operated all over the world and production totalled 1,821. US Army designations are CH-34A to CH-34D Choctaw. The marine version is known as the UH-34D, VH-34D and UH-34E Seahorse, the name Seabat is used for anti-submarine variants (SH-34G and SH-34J). The S-58B, C and D are civil transports. First flown in 1970 with two PT6 turboshaft engines, the S-58T was eventually offered as new or in the form of a conversion from the piston-engined version. *Country of origin:* USA. *Main silhouette:* S-58; *lower side view:* S-58T. *Picture:* S-58T.

Confusion: S-55, S-58

Westland Wessex

Power: 2 × Gnome turboshafts *Rotor dia:* 17.07m *Length:* 14.74m



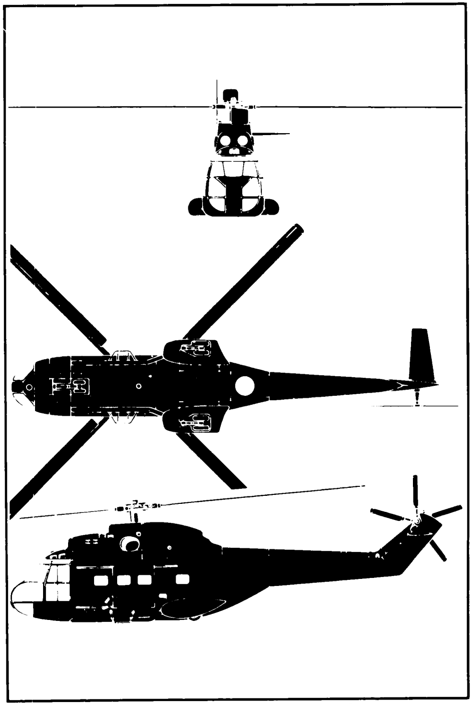


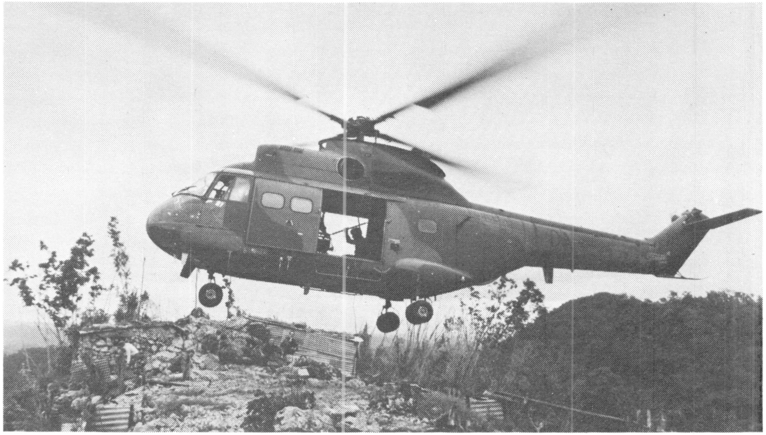
A general-purpose and anti-submarine helicopter first flown in 1958, the Wessex was originally powered by a Gazelle engine but was later fitted with Rolls-Royce Gnomes. Used by the RAF, Royal Navy and Royal Australian Navy, the Wessex has been built in various versions, including the HC2 transport/ambulance for the RAF and the HAS1 anti-submarine and HU5 commando assault transport for the Royal Navy. The Wessex carries a crew of two and ten passengers. Range is 538km. *Country of origin:* UK. *Silhouette:* HAS1. *Picture:* Wessex HC2.

Aerospatiale/Westland AS.330 Puma

Confusion: Wessex, Super Frelon, Sea King

Power: 2 × Turmo turboshafts *Rotor dia:* 15m *Length:* 14m



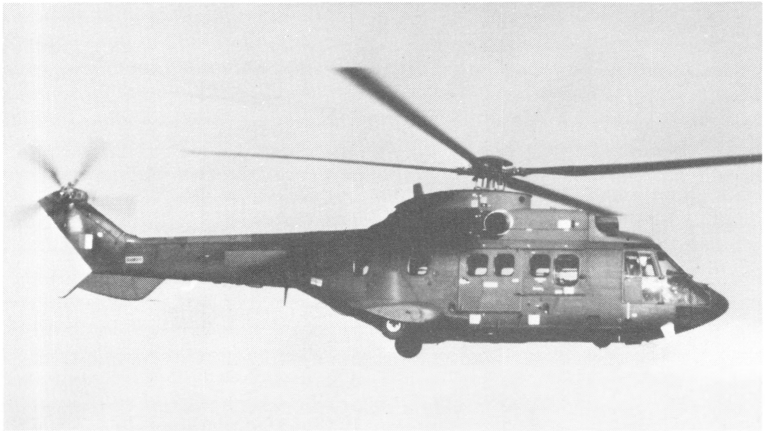


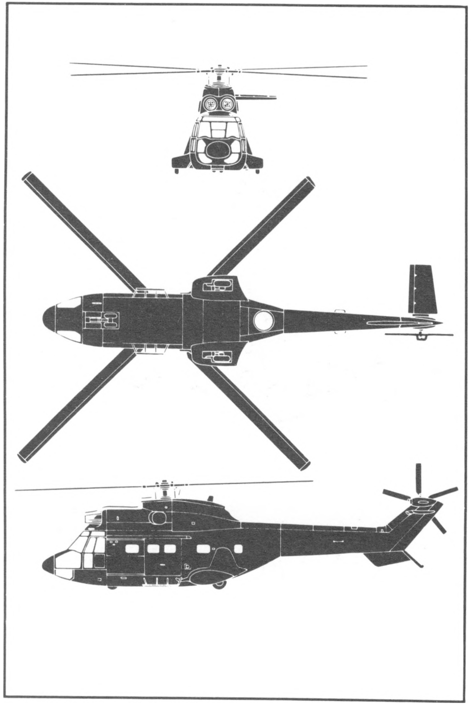
Originally a French product which first flew in 1965, the AS.330 Puma was later adopted as part of a joint Franco-British programme under which production was shared between the two countries. The RAF and the French Army use the type as a transport and some 700 have been sold for military and civil applications in many countries. Early versions were the 330B (French Army), 330C (export), 330E (RAF), 330F and G (civil) and 330H (military). Current models are the 330J (civil) and 330L (military). A total of 16 troops or up to 20 passengers can be carried at a cruising speed of 257km/h. The Puma is licence-built in Romania. *Countries of origin:* France/UK/Romania. *Silhouette:* AS.330B. *Picture:* Puma HC1 (AS.330E).

Confusion: Puma, Wessex, Super Frelon

Aerospatiale AS.332 Super Puma/AS.532 Cougar

Power: 2 × Makila turboshafts *Rotor dia:* 15.08m *Length:* 14.82m



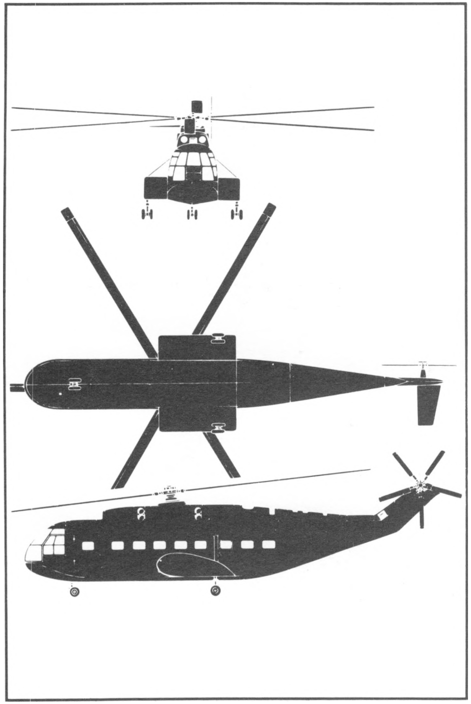


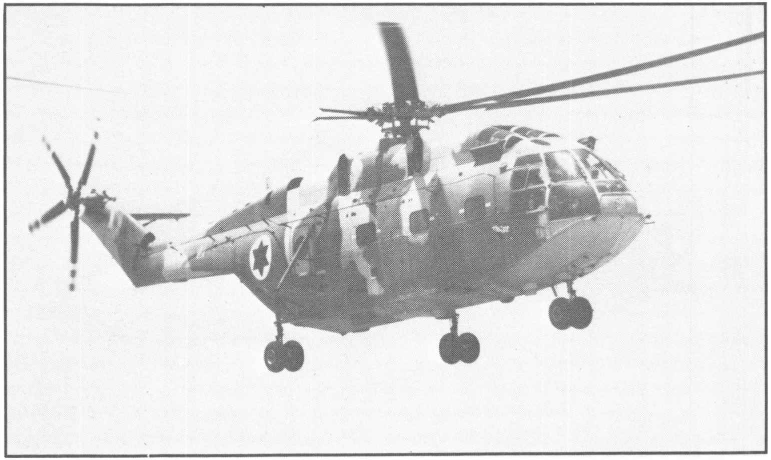
A much modified version of the Puma, the 332 Super Puma has a lengthened nose, new undercarriage and higher-powered engines. The five versions of the 332 on offer are the military 332B seating 20 troops; civil 332C seating 17; 332F for ASW/search and rescue and other naval duties; 332L with 0.76m fuselage extension, four more seats and two extra windows; and 332M with the same extension for military use. 332Ls for Bristow Helicopters were known as Tigers. As with other Aerospatiale helicopters, the Super Puma prefix was changed from SA to AS in 1990. Military versions of Super Puma now have the type number 532 and the name Cougar. Latest variants are the Super Puma Mk II and Super Cougar Mk II. *Country of origin:* France. *Picture:* 532 M1.

Aerospatiale AS.321 Super Frelon

Confusion: Puma, Super Puma, S-61L/N

Power: 3 × Turmo turboshafts *Rotor dia:* 18.9m *Length:* 23m



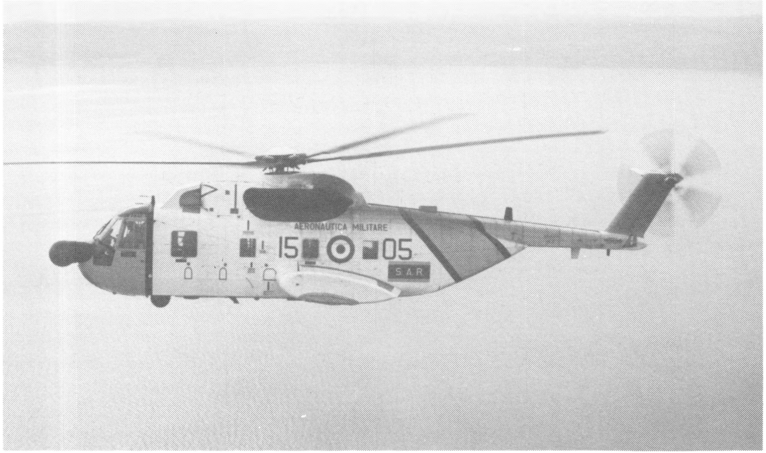


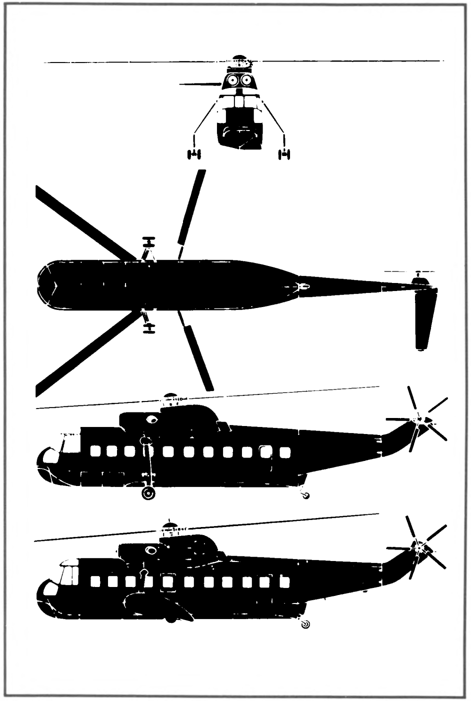
First flown in 1962, the three-engined AS.321 Super Frelon is used as a military and civil transport and for anti-submarine work. Civil versions are the 321F and 321J, the former designed to carry 34/37 passengers. The 321G for the French Navy is amphibious, has radar and carries torpedoes and other military equipment. The 321H army/air force variant accommodates 27–30 troops or cargo. The Super Frelon has been built in some numbers and sold to eight countries, including Israel. Cruising speed is 250km/h and range 820km. *Country of origin:* France. *Silhouette:* AS.321F. *Picture:* AS.321K.

Confusion: Super Frelon, S-62

Sikorsky/Agusta S-61L/S-61N

Power: 2 × CT58 turboshafts *Rotor dia:* 18.9m *Length:* 22.2m



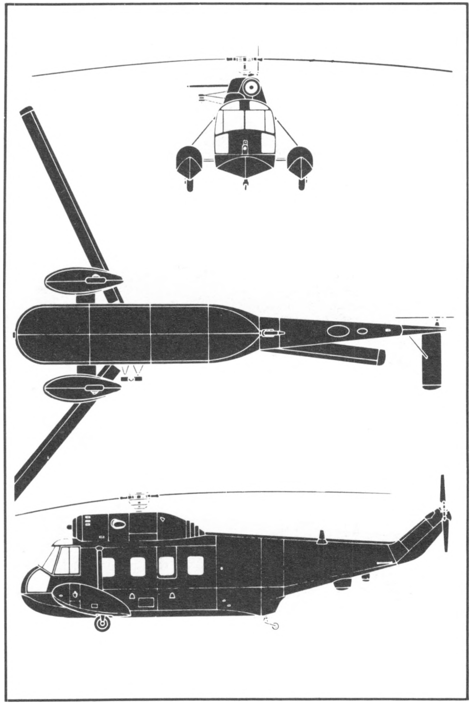


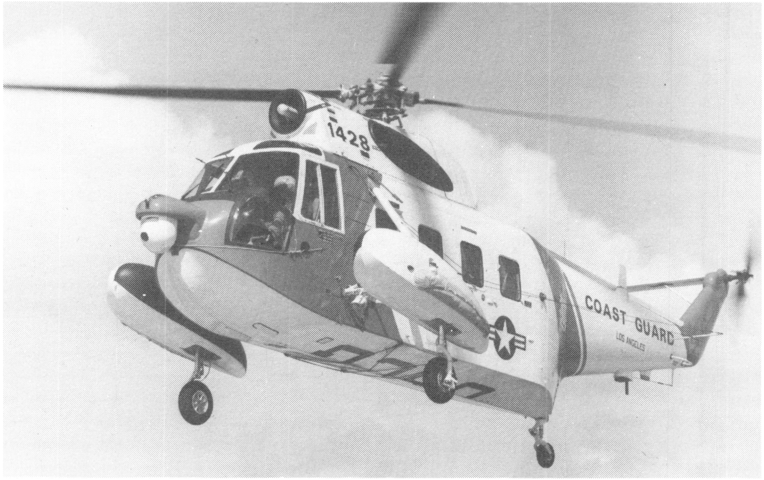
A widely used helicopter airliner, the S-61L/N can seat up to 28 passengers. The S-61L is non-amphibious, while the N has stabilising floats and a sealed hull for use on water. British International Helicopters is the largest single operator of this type. The S-61L first flew in 1960 and the S-61N in 1962. The undercarriage is retractable and the nose carries a thimble radome containing weather radar. S-61N production rights are now held by Agusta. In production in Italy is the S-61R search and rescue variant for the Italian Air Force. *Countries of origin:* USA/Italy. *Main silhouette:* S-61L; *lower side view:* S-61N. *Picture:* Agusta AS-61R.

Sikorsky S-62

Confusion: S-61L/N

Power: 1 × T58 turboshaft *Rotor dia:* 16.16m *Length:* 13.58m



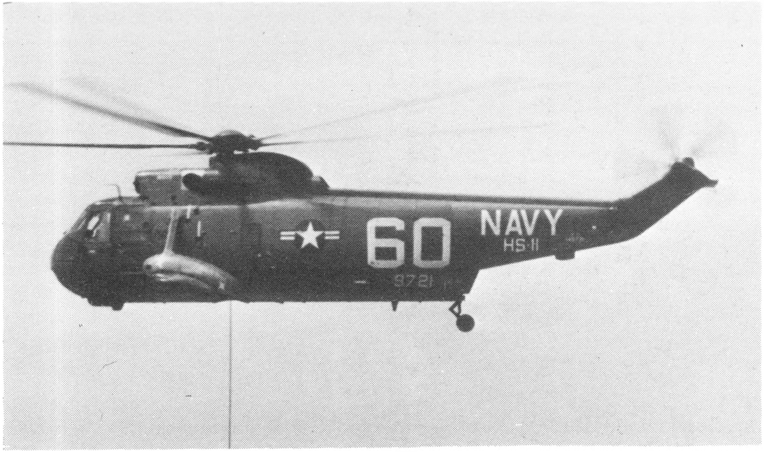


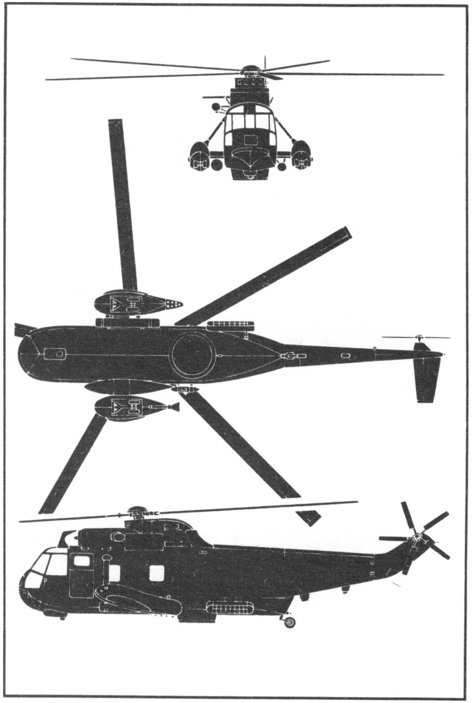
The first amphibious helicopter to be built by Sikorsky, the S-62 first flew in 1958 and has been used in both military and civil forms. As an airliner it carries 12 passengers or cargo. The original S-62A was licence-built by Mitsubishi in Japan, the S-62B had the main rotor system of the S-58 instead of that of the S-55, the S-62C was the last commercial version. The US Coast Guard took delivery of 99 S-62s, designating them HH-52A. Maximum cruising speed is 158km/h and range 764km. *Country of origin:* USA. *Silhouette and picture:* HH-52A.

Sikorsky SH-3/S-61

Confusion: Sea King, S-61R

Power: 2 × T58 turboshafts *Rotor dia:* 18.9m *Length:* 16.69m



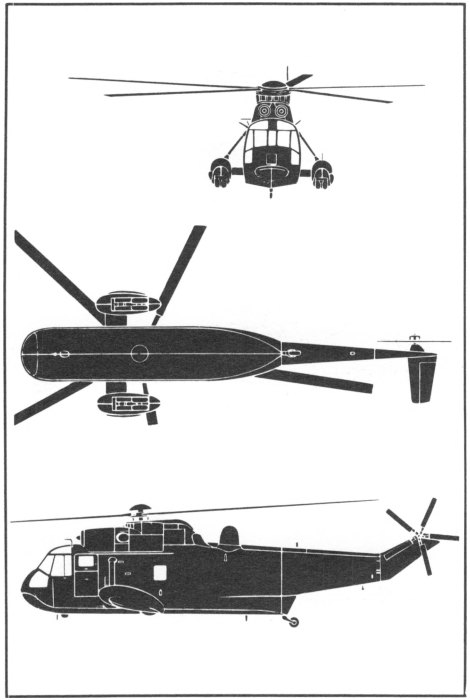


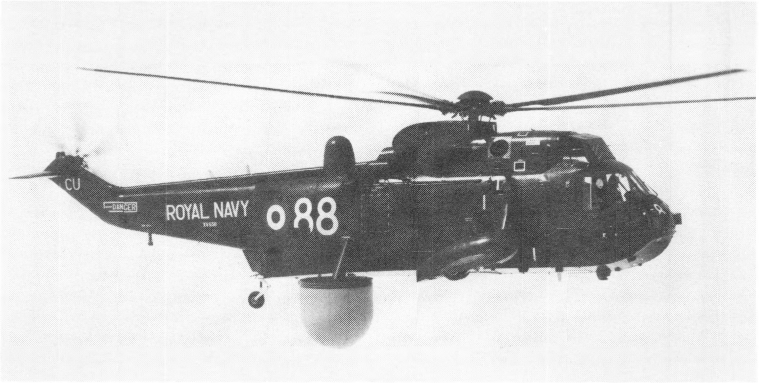
The multi-purpose S-61 is used for anti-submarine work, transport and search and rescue. As the S-61 the type can carry 26 troops. In the anti-submarine role it is known as the Sea King and carries weapons, including homing torpedoes. US Navy designation is SH-3 and there are a number of variants, from SH-3A through to SH-3H. The SH-3 is known as the CH-124 in the Canadian Armed Forces. The SH-3 has been widely exported and is standard equipment in Japan and Italy, where it is built by Agusta. The SH-3 first flew in 1959. Range is 1,005km and cruising speed 219km/h. *Country of origin:* USA. *Silhouette:* SH-3H. *Picture:* SH-3D.

Westland Sea King/Commando

Confusion: SH-3/S-61, S-61R

Power: 2 × Gnome turboshafts *Rotor dia:* 18.9m *Length:* 17.01m



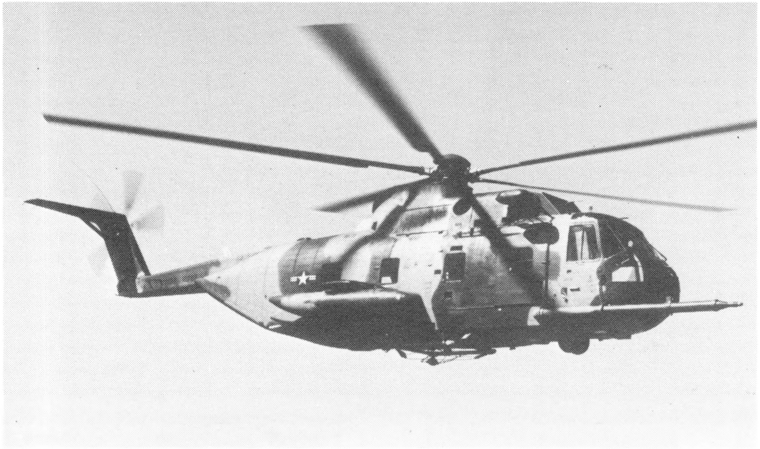


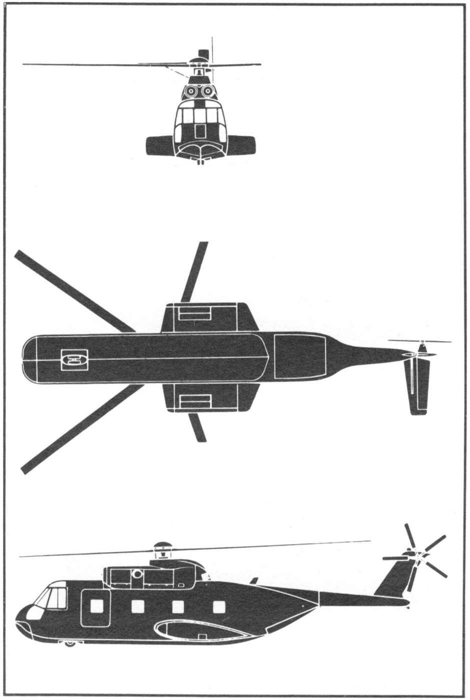
Developed under licence from the American S-61D, the Sea King is the Royal Navy's standard anti-submarine helicopter under the designations HAS1 and 2. The HAR3 is used by the RAF for search and rescue. The Sea King has been exported widely. The Commando military transport version can seat 30 troops and has no amphibious capability. Commando Mks 1, 2, 3 and HC4 are in service. The Commando Mk 1 differs minimally from the Sea King, while the Mk 2, the main production version, can be used for tactical troop transport, logistic support, casualty evacuation, air-to-surface strike and search and rescue. The Mk 42 is for India, the HAS Mk 5 for the Royal Navy and 10 have been fitted with Searchwater radar as the Sea King AEW. Sea King HAS Mk 6 is the latest ASW version for the Royal Navy. *Country of origin:* UK. *Silhouette:* HAS1. *Picture:* Sea King AEW2A.

Confusion: Sea King, SH-3/S-61

Sikorsky S-61R/CH-3E/HH-3F Pelican

Power: 2 × T58 turboshafts *Rotor dia:* 18.9m *Length:* 17.45m



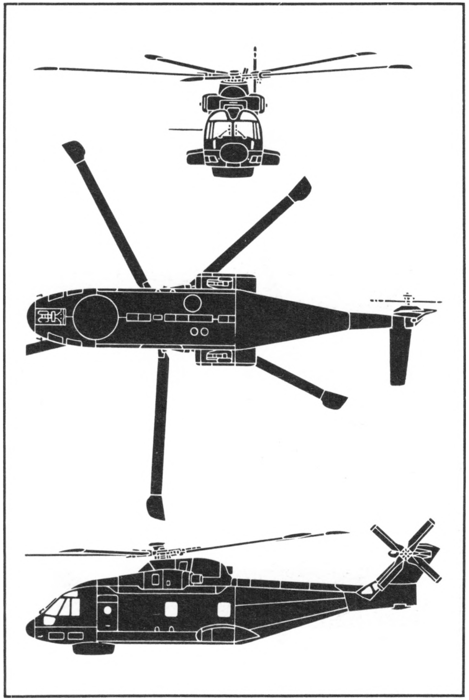


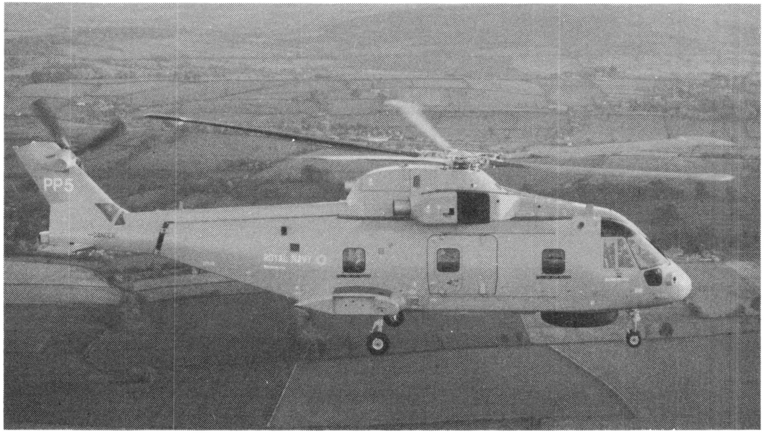
Developed from the S-61 Sea King, the S-61R has a rear loading ramp and retractable undercarriage. It is used for transport, assault and search and rescue. The first S-61R flew in 1963 and the type is used by the USAF as the CH-3E and HH-3E and by the US Coast Guard as the HH-3F Pelican, with a nose radome. The HH-3E has armour, defensive armament and an in-flight refuelling probe on the starboard side. Up to 30 troops can be carried and a hoist is fitted. Agusta in Italy continues to build a version of the Pelican for the Italian Air Force. Cruising speed is 232km/h and range 748km. *Country of origin:* USA. *Silhouette:* HH-3F. *Picture:* HH-3E.

EHI EH 101 Merlin

Confusion: S-61R, S-65A

Power: 3 × T700 or RTM 322 turboshaft engines *Rotor dia:* 18.59m *Length:* 22.81m



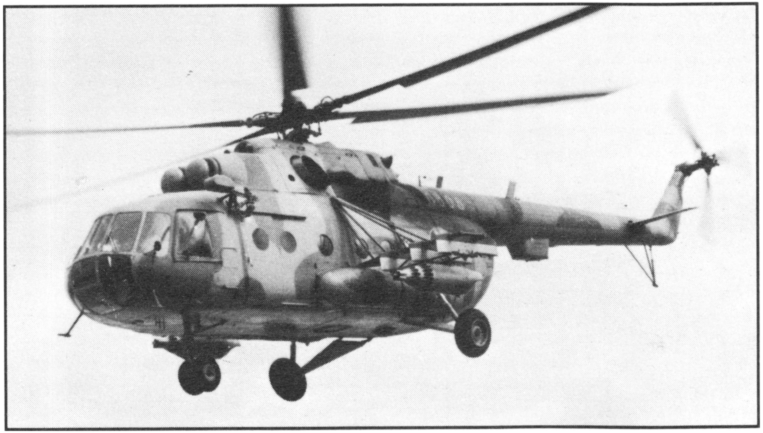


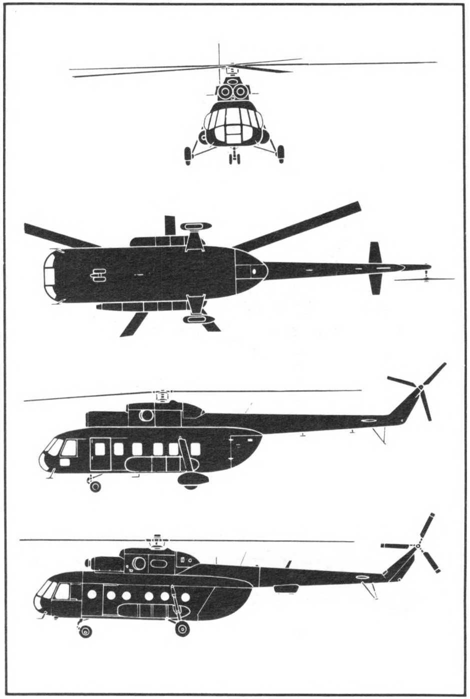
Intended for naval, military and commercial use, the EH 101 represents a combined design and development effort by Westland in the United Kingdom and Agusta in Italy. First flown in October 1987, the EH 101 is to be used in the maritime role by the British (as the Merlin), Italian and Canadian navies. In commercial form, known as Heliliner, the EH 101 will seat 30 passengers, while as a military tactical transport it will carry 35 fully equipped troops. In its naval form the EH 101 will carry advanced avionics and anti-submarine systems and will serve aboard vessels from frigate size upwards. The naval variant has a maximum take-off weight of 13,000kg and a cruising speed of 259km/h. *Countries of origin:* UK/Italy. *Silhouette and picture:* EH 101 Merlin.

Confusion: S-61L/N, S-62, S-61R, 'Haze'

Mil Mi-8/Mi-17 'Hip'

Power: 2 × Isotov turboshafts *Rotor dia:* 21.29m *Length:* 18.3m



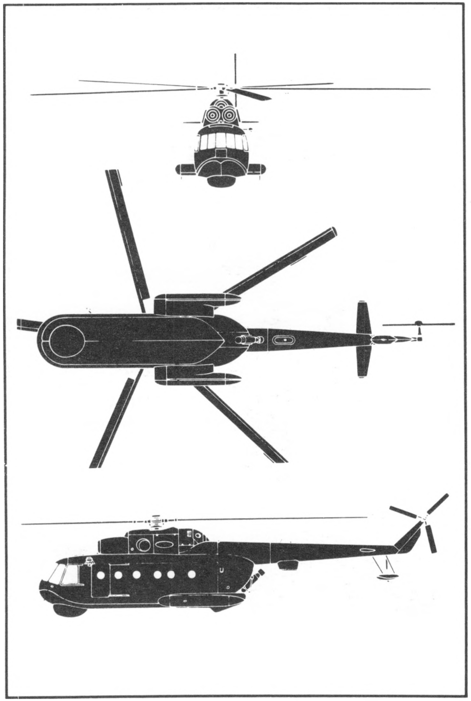


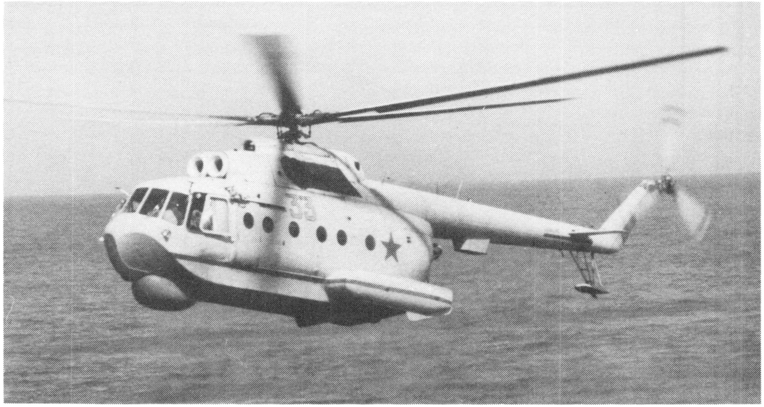
A replacement for the Mi-4 'Hound', the Mi-8 is a twin-turbine helicopter seating up to 32 passengers. As with other CIS medium helicopters, the 'Hip' is used by both the CIS services and Aeroflot. The military versions have round windows and are code-named 'Hip C' to 'Hip K', this last version being used for ECM work. 'Hip E' carries a gun and massive rocket-projectile armament. The transport has rectangular windows and no radome. With uprated engines and other modifications the successor to the Mi-8 is known as the M-17, code-named 'Hip H/K'. Range is 375km and maximum cruising speed 225km/h. Over 10,000 'Hips' have been built. *Country of origin:* Russia. *Main silhouette:* 'Hip C'; *lower side view:* 'Hip H'. *Picture:* 'Hip H'.

Mil Mi-14 'Haze'

Confusion: 'Hip', S-61

Power: 2 × Isotov turboshafts *Rotor dia:* 21.29m *Length of fuselage:* 18.15m



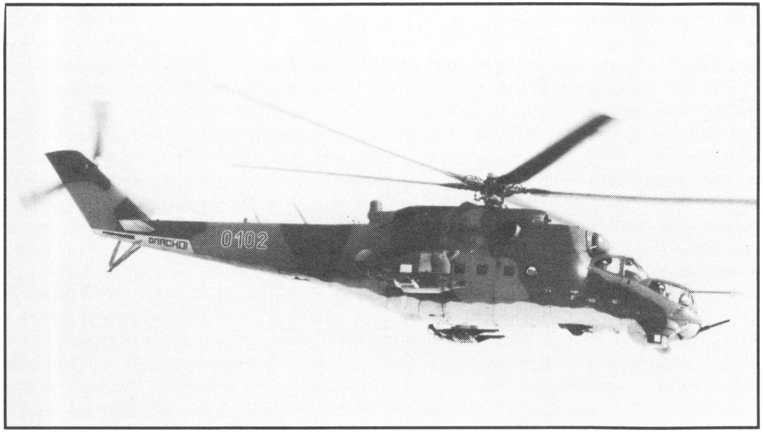


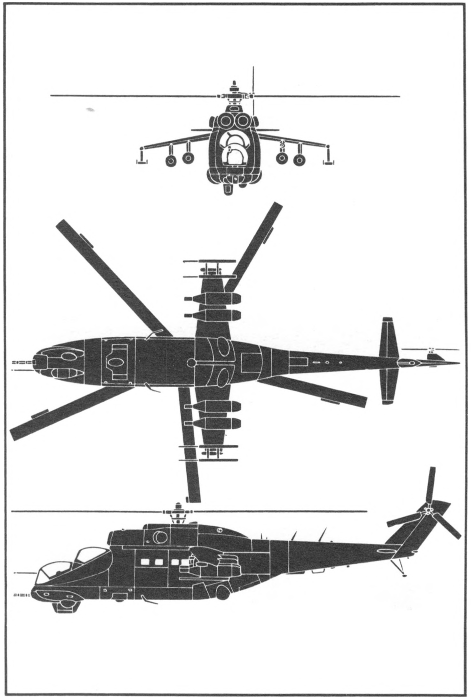
Developed from the Mi-8, the Mi-14 'Haze' is a shore-based CIS Navy anti-submarine helicopter. A boat hull is incorporated, there is a radome under the nose and a magnetic anomaly detector is mounted under the tailboom. The undercarriage is fully retractable. 'Haze' is in full production and in large-scale service. Over 230 have been delivered. Dimensions and dynamic components are generally similar to those of the Mi-8, while the powerplant is a pair of Isotov TV3-117 turboshafts of the kind fitted to the Mi-24 gunship. There are three versions, Mi-14PL 'Haze A' for ASW, Mi-14BT 'Haze B' for mine countermeasures, Mi-14PS 'Haze C' for search and rescue and Mi-14PW as used in Poland. Maximum speed is approximately 230km/h. *Country of origin:* Russia. *Silhouette:* 'Haze A'. *Picture:* 'Haze A'.

Confusion: HueyCobra

Mil Mi-24 'Hind'

Power: 2 × Isotov turboshafts *Rotor dia:* 16.76m *Length:* 16.9m



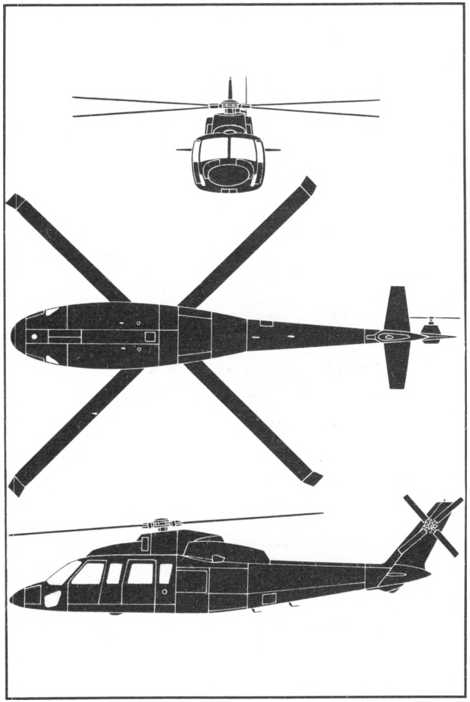


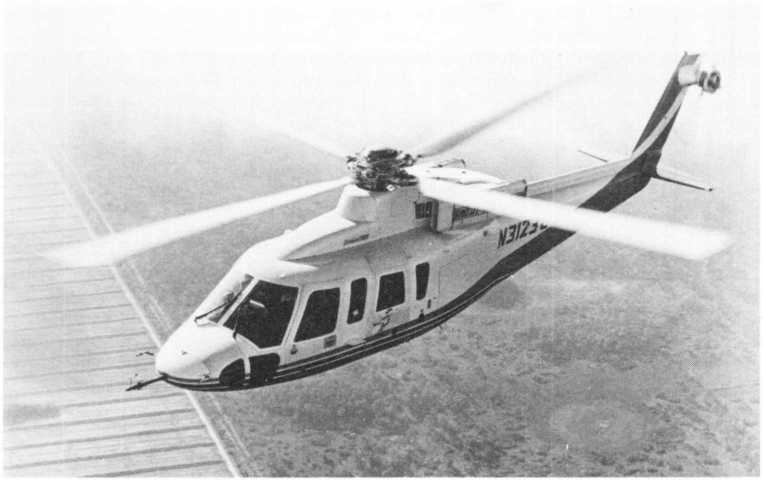
A heavily armed assault and gunship helicopter, the Mi-24, code-named 'Hind', is in service in very large numbers. 'Hind A' carries eight troops and has stub-wing-mounted missiles and a nose gun, while 'Hind D' has separate cockpits for pilot and weapon operator and a four-barrel machine gun in a chin mounting. 'Hind C' has no nose gun or under-nose sighting system. Mi-24W 'Hind E' carries tube-launched anti-tank missiles. Mi-24P 'Hind F' has twin gun side pack and no nose turret, and Mi-24R 'Hind G' is used for radiation sampling. Early 'Hinds' had the tail rotor on the starboard side, while later versions have it to port. Export versions are Mi-25 and Mi-35. *Country of origin:* Russia. *Silhouette:* 'Hind D'. *Picture:* 'Hind E'.

Sikorsky S-76

Confusion: S-70, A109

Power: 2 × Allison 250, PT6B or Arriel turboshafts *Rotor dia.* 13.41m *Length:* 13.44m



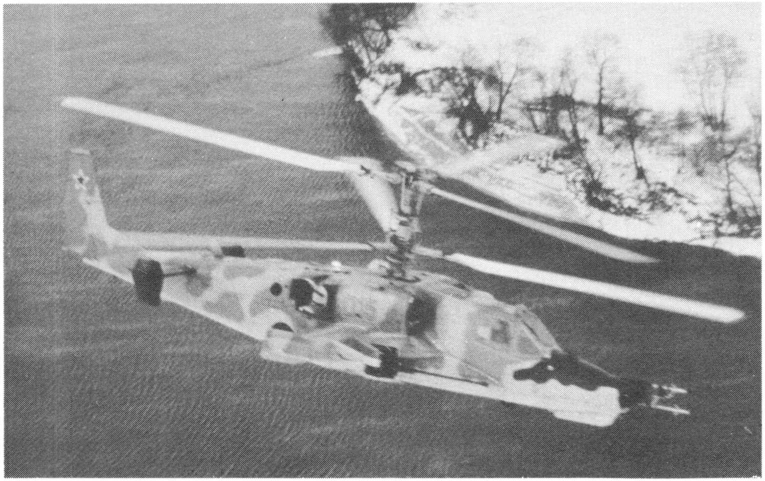


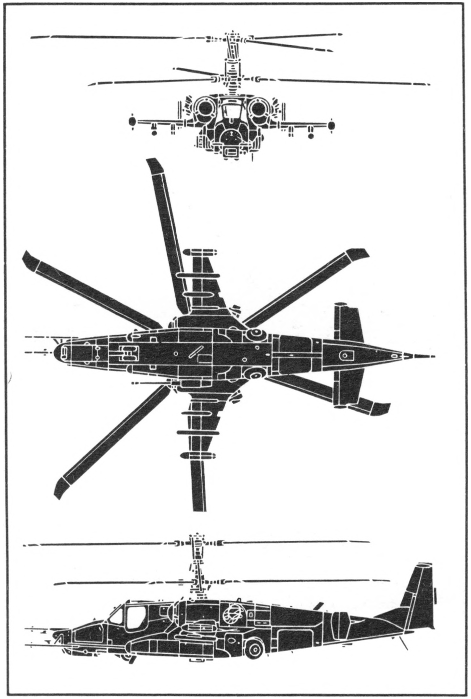
A commercial transport seating 14 passengers, the Sikorsky S-76 first flew in 1977. The S-76 is classified as an all-weather helicopter. Maximum cruising speed at a gross weight of 3,810kg is 286km/h. Range with eight passengers, auxiliary fuel and offshore equipment is 1,112km. Current production version is the S-76 Mk II. In addition there are the S-76 Utility, the S-76B with PT6B engines, S-76B and S-76C with Arriel engines, the H-76 armed utility model named Eagle and the H-76N naval variant. *Country of origin:* USA. *Silhouette:* S-76A. *Picture:* S-76B.

Confusion: Apache

Kamov Ka-50 'Hokum'

Power: 2 × TV3-117 turboshafts *Rotor dia:* 14.5m *Length:* 16.0m



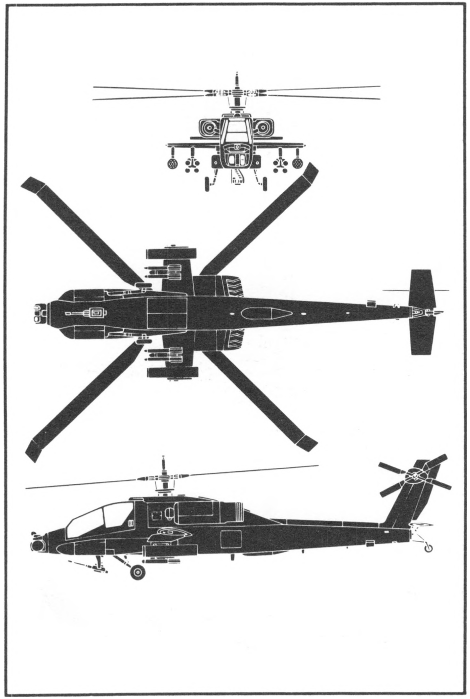


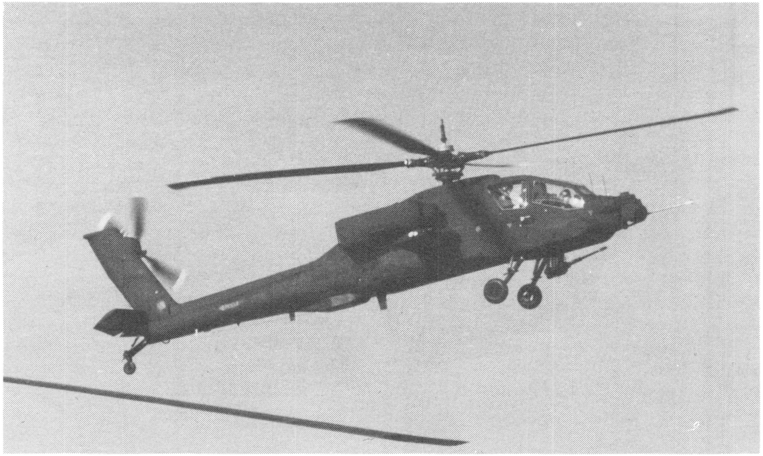
A unique design, the Kamov Ka-50 code-named 'Hokum' is the first single-seat close support helicopter. Another designation, V-80 has been reported. First flown in July 1982 the 'Hokum' is very fast and agile and its targets are designated by surveillance aircraft. The undercarriage is retractable and the cockpit armoured. A 30mm cannon is mounted on the starboard fuselage side and up to 16 laser-guided tube-launched missiles or 80 air-to-air rockets can be carried. 'Hokum' has a maximum speed in a shallow dive of 350km/h and the type is in production. *Country of origin:* Russia.

McDonnell Douglas AH-64A Apache

Confusion: Black Hawk

Power: 2 × T700 turbofans *Rotor dia:* 14.63m *Length:* 14.68m



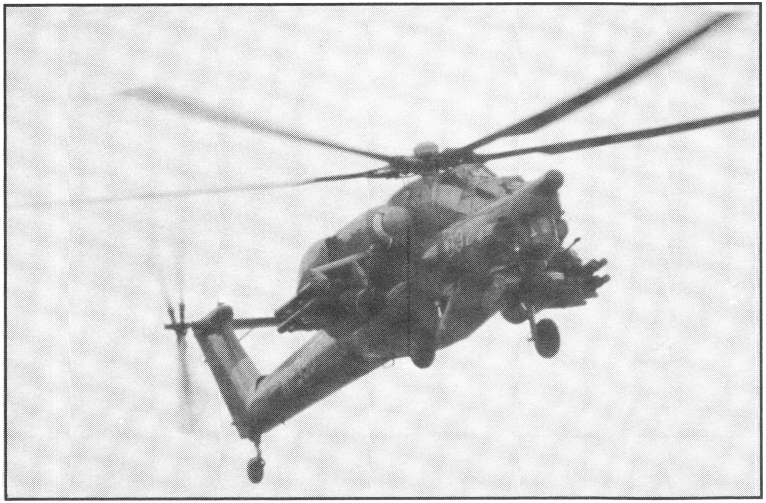


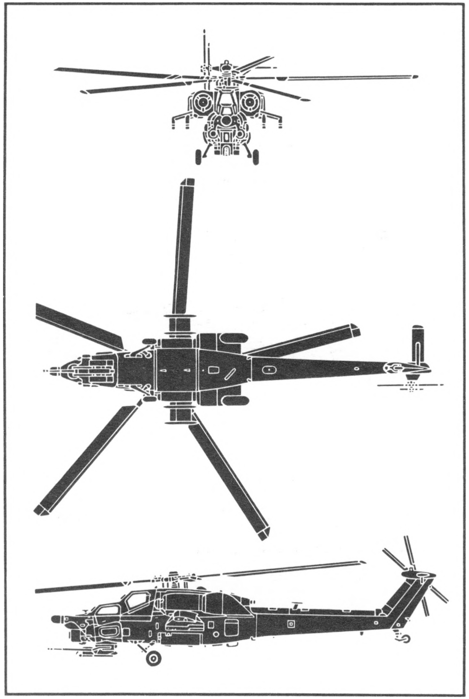
By 1990, 600 AH-64A Apache tandem two-seat all-weather attack helicopters had been delivered. Powered by two 1,696shp GE T700 engines, the Apache is capable of a maximum speed of 300km/h. The helicopter mounts a 30mm Chain Gun automatic cannon under the fuselage and can carry rockets or missiles. An advanced sighting and fire control system is fitted. The first prototype flew in September 1975. The type was originally called Hughes AH-64A, prior to the company's take-over by McDonnell Douglas. Latest version is the AH-64C Longbow Apache with mast-mounted radome and Hellfire missiles. *Country of origin:* USA.

Confusion: Apache

Mil Mi-28 'Havoc'

Power: 2 × TV3-117 turboshafts *Rotor dia:* 17.2m *Length:* 16.85m



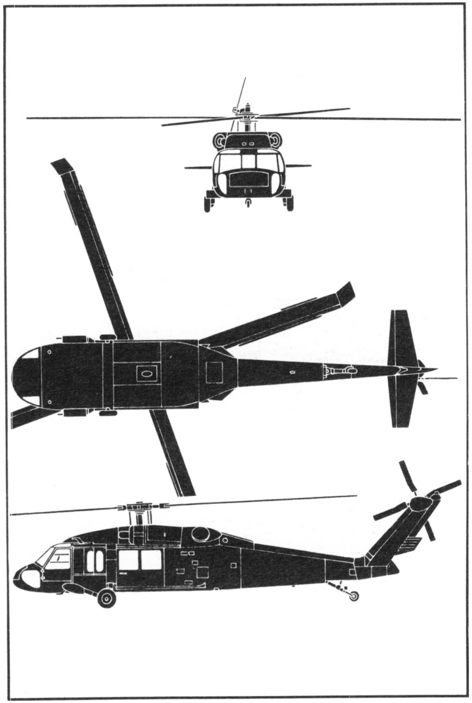


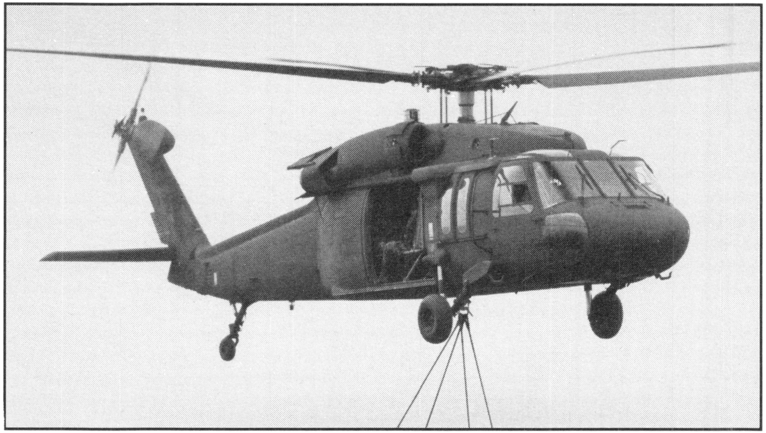
A two-seat all-weather combat helicopter, the Mi-28 code-named 'Havoc' has various potential roles including night attack and air-to-air combat and naval support. The Mi-28 first flew in November 1982 and was in competition with the Ka-50 to meet the Russian army attack requirement – which the Ka-50 won. The Mi-28 has a nose-mounted 30mm gun and four stub-wing-mounted pylons for missiles or rockets. It has a maximum speed of 300km/h and a range of 470km. *Country of origin:* Russia.

Sikorsky S-70/UH-60A Black Hawk

Confusion: S-76, Seahawk

Power: 2 × T700 turboshafts *Rotor dia:* 16.23m *Length:* 15.26m



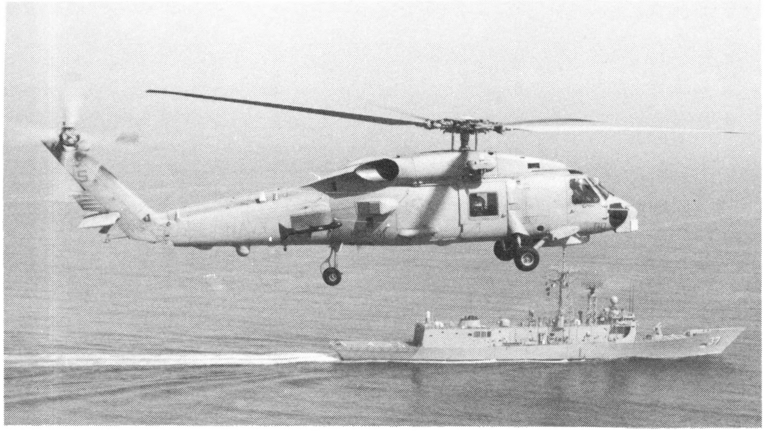


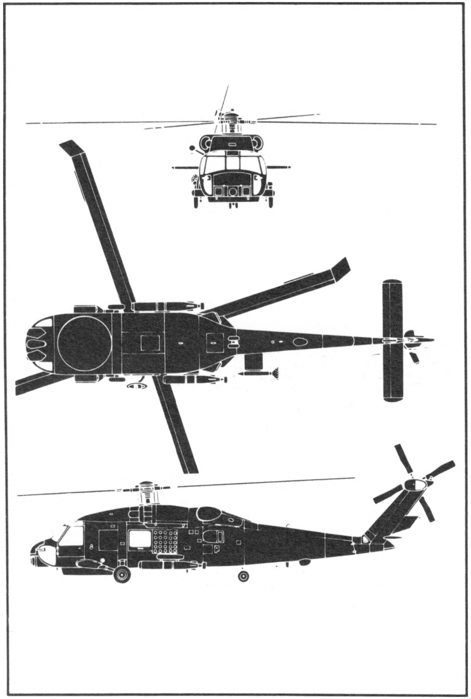
First flown in 1974, the Sikorsky S-70 Black Hawk, military designation UH-60A, was the winner of the US Army's Utility Tactical Transport Aircraft System (Uttas) competition and is in full-scale production. By end 1990 over 1,600 SH-70/H-60 helicopters had been built. A total of 11 fully equipped troops can be carried and alternative loads include cargo and stretchers. Up to 3,629kg can be carried externally on a hook. The HH-60A Night Hawk is a combat rescue version for the US Air Force, while the EH-60A is equipped for electronic countermeasures. S-70C is a commercial variant. Westland is to build the S-70 in the UK as the WS70. *Countries of origin:* USA/UK. *Silhouette and picture:* UH-60A.

Confusion: Black Hawk, S-76

Sikorsky S-70B/SH-60B Seahawk

Power: 2 × T700 turboshafts *Rotor dia:* 16.36m *Length:* 15.26m



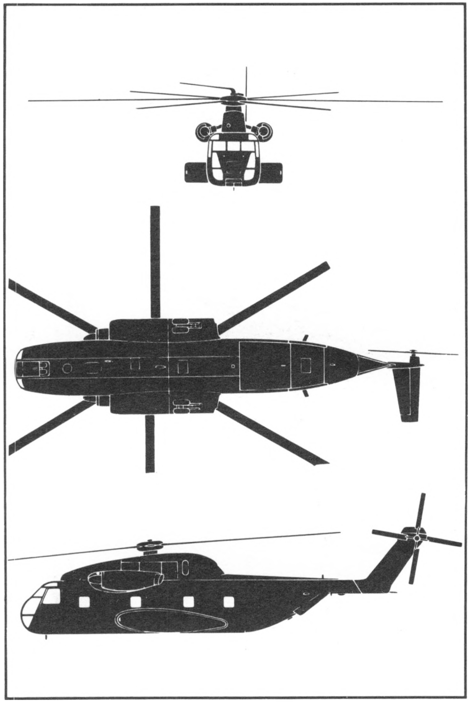


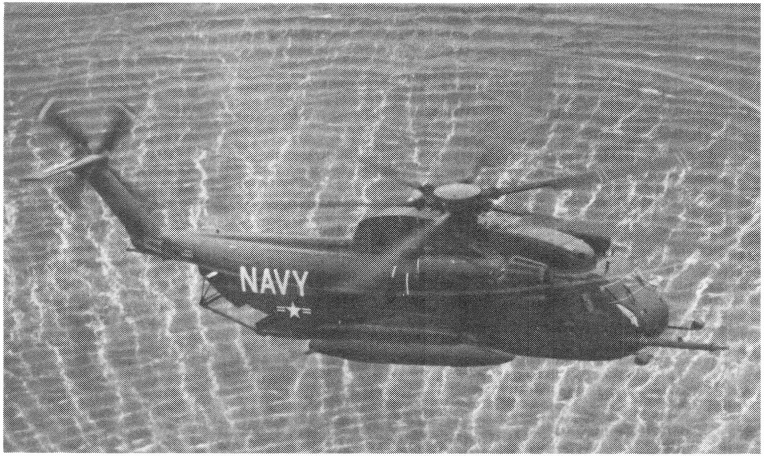
Developed from the Black Hawk, the three-crew SH-60B Seahawk was the winner in the US Navy's Light Airborne Multi-Purpose System (LAMPS) Mk III competition. The Seahawk is used for anti-submarine warfare and ship surveillance/ship targeting from cruisers, destroyers and frigates. Sophisticated detection and processing equipment and anti-submarine torpedoes are carried. Deliveries started in 1983. The Seahawk has also been purchased by Japan, Spain and Australia. Other versions are SH-60F Ocean Hawk, HH-60 and HH-60J Jayhawk. *Country of origin:* USA.

Sikorsky S-65A/CH-53 Sea Stallion

Confusion: CH-53E

Power: 2 × T64 turboshafts *Rotor dia:* 22.02m *Length:* 20.47m

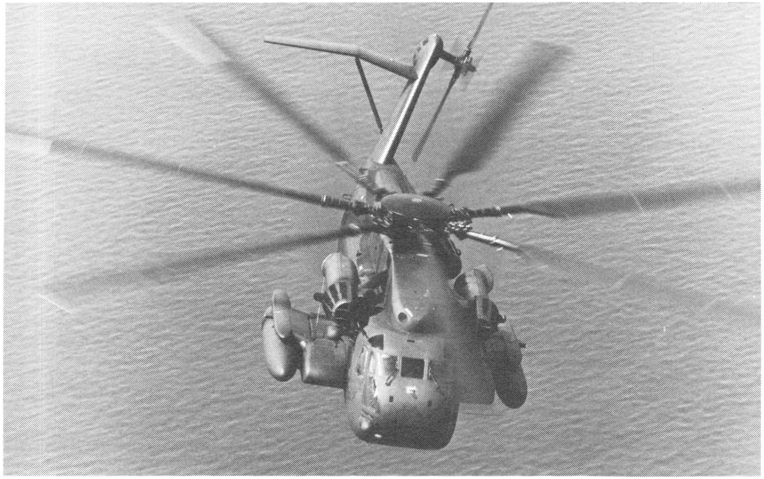


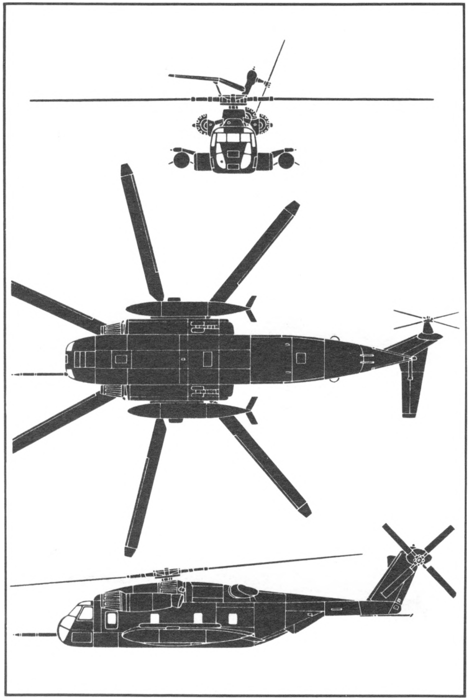


A heavy assault transport, the S-65A first flew in 1964 and incorporates many S-64 components. Fitted with rear loading doors, the type can carry vehicles, guns or 55 troops. The US Marines and Iran use the CH-53A Sea Stallion, while the USAF has the HH-53B/C. An improved US Marine Corps version is the CH-53D and the CH-53G was licence-built in Germany. The S-65 (MCM), designated RH-53D in the US Navy, is used for mine countermeasures and has a tow boom. The helicopter will remain in USMC service until at least 1995. Range is 410km and maximum cruising speed 278km/h. *Country of origin:* USA. *Silhouette:* CH-53G. *Picture:* CH-53D.

Sikorsky S-80/CH-53E Super Stallion

Power: 3 × T64 turboshafts *Rotor dia:* 24m *Length:* 22.38m



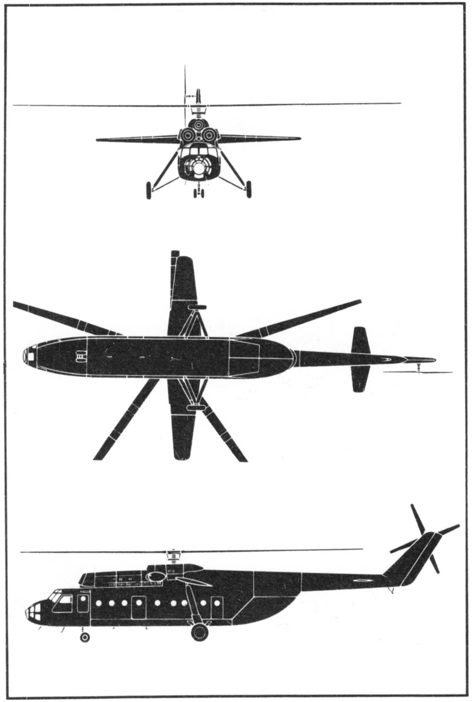


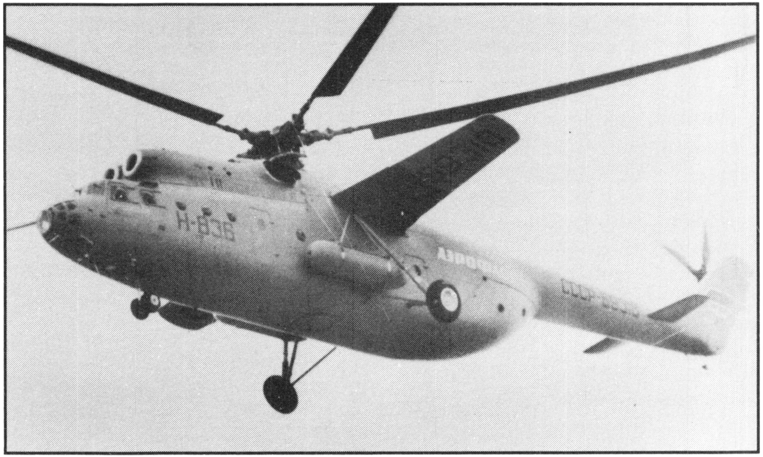
Developed from the S-65/CH-53A/B/D Sea Stallion, the CH-53E Super Stallion three-engined amphibious assault transport helicopter is used by both the US Navy and US Marines. Up to 56 troops can be accommodated and very large loads, such as aircraft, can be slung externally. The first prototype flew in 1974. An airborne mine countermeasures version is the MH-53E SeaDragon, which has been delivered to US Navy. These have larger sponsons and hydrofoil magnetic sweeping gear. Maximum cruising speed is 278km/h. *Country of origin:* USA. *Silhouette:* CH-53E. *Picture:* CH-53E.

Mil Mi-6 ‘Hook’

Confusion: ‘Harke’

Power: 2 × Soloviev turboshafts *Rotor dia:* 35m *Length:* 33.18m



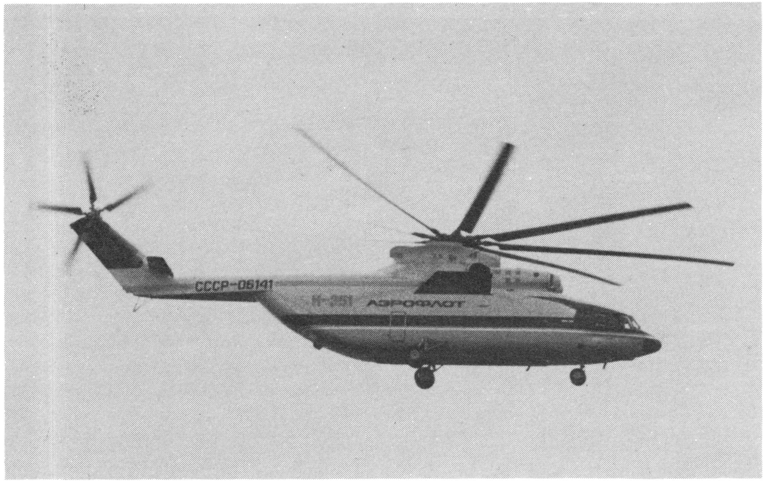


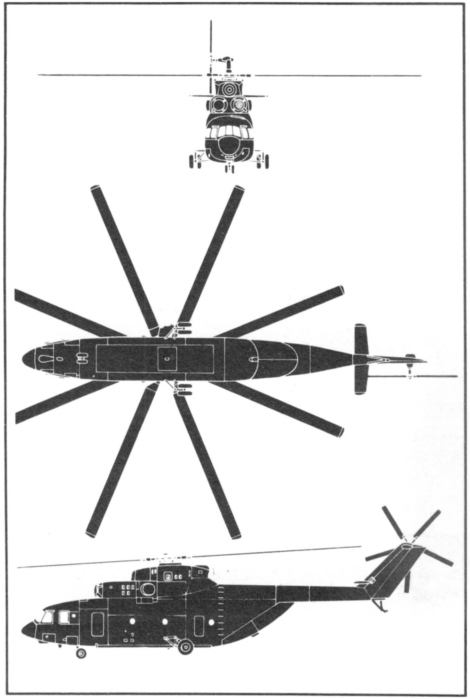
When it first appeared in 1957 the Mi-6, code-named ‘Hook’, was the world’s largest helicopter. Basically a military design, of which over 800 have been built, the type has also been employed by Aeroflot as a specialised civil transport. Military ‘Hooks’ have been widely exported. Equipment, including missiles, can be loaded through the rear clamshell doors and heavy loads can be carried externally. A total of 65 passengers can be accommodated. Maximum cruising speed is 250km/h and range 650km. ‘Hook-B’ and Mi-22 ‘Hook-C’ are command support versions. *Country of origin:* Russia.

Confusion: 'Hook'

Mil Mi-26 'Halo'

Power: 2 × Lotarev turboshafts *Rotor dia:* 32m *Length:* 33.7m



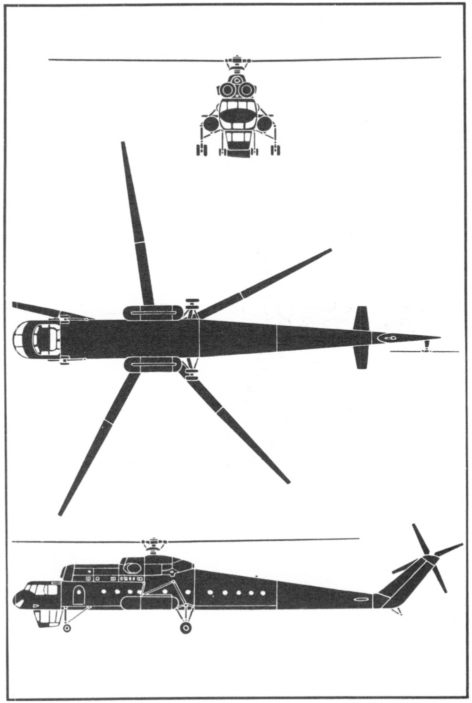


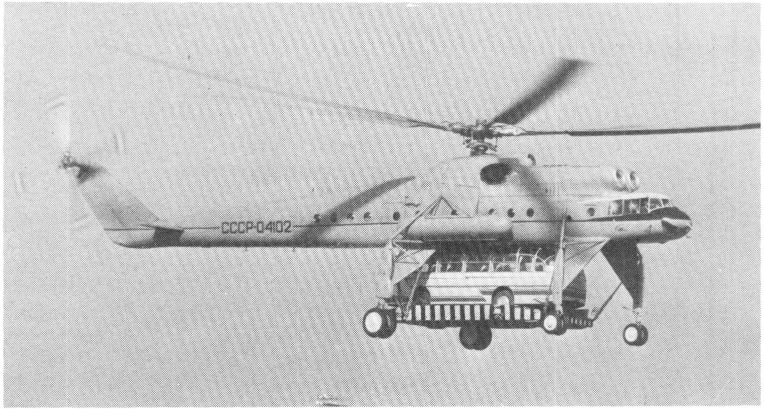
The heaviest helicopter built anywhere in the world, the Mi-26, NATO code-named 'Halo', is the first to have an eight-blade rotor. Initially flown in 1977 and with over 70 produced, the Mi-26 can carry 20,000kg of internal payload or up to 85 troops. Capable of operating in extreme winter conditions in the CIS in the civil role, the Mi-26 also has a variety of military applications. The Mi-26 made its first public appearance at the 1981 Paris Air Show, where it aroused major interest. The Mi-26's top speed is 295km/h and range 800km. *Country of origin:* Russia.

Mil Mi-10/Mi-10K ‘Harke’

Confusion: ‘Hook’, Skycrane

Power: 2 × Soloviev turboshafts *Rotor dia:* 35m *Length:* 32.86m



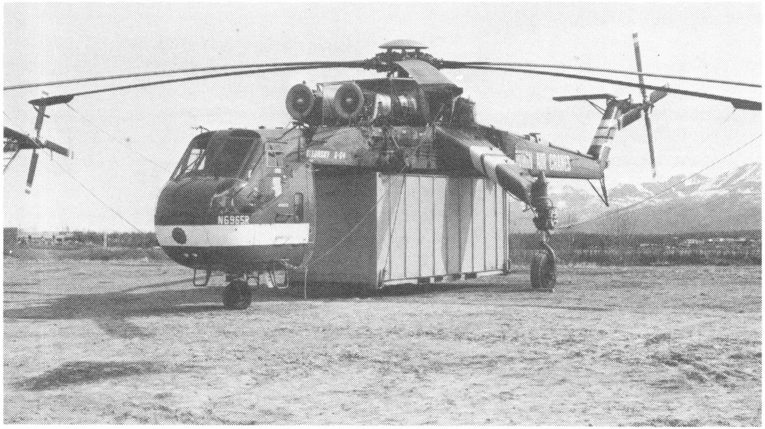


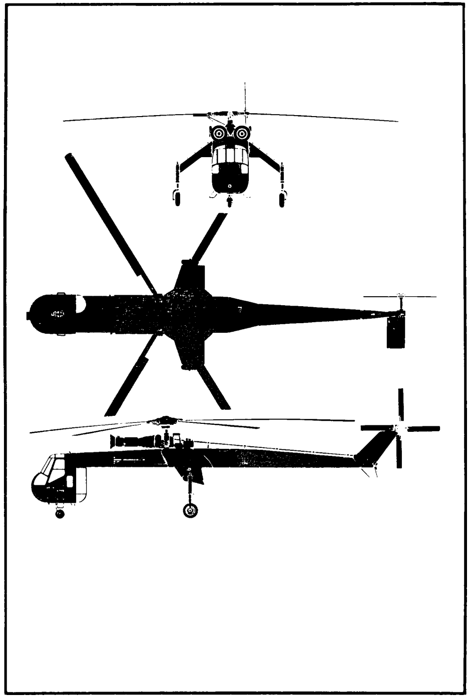
Developed from the Mi-6, the Mi-10 ‘Harke A’ is a very large flying crane which first flew in 1960. Bulky loads can be carried between the long main undercarriage legs and the cabin accommodates up to 28 passengers. The Mi-10 is used by both the armed forces and Aeroflot. The Mi-10K ‘Harke B’ has the same fuselage but a short undercarriage and a gondola under the nose. A closed-circuit television system, with cameras scanning forwards from under the rear fuselage and downwards through the sling hatch, is used to monitor Mi-10 payloads. Over 60 Mi-10s were built. The Mi-10K was first flown in 1966. Range of the Mi-10 is 250km and cruising speed 180km/h. *Country of origin:* Russia. *Silhouette:* Mi-10K. *Picture:* Mi-10.

Confusion: 'Harke'

Sikorsky S-64 Skycrane/CH-54 Tarhe

Power: 2 × JTFD 12 turboshafts *Rotor dia:* 21.9m *Length:* 21.41m



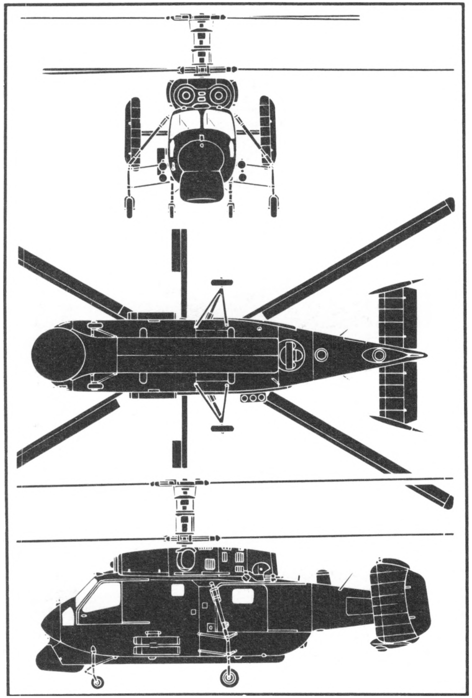


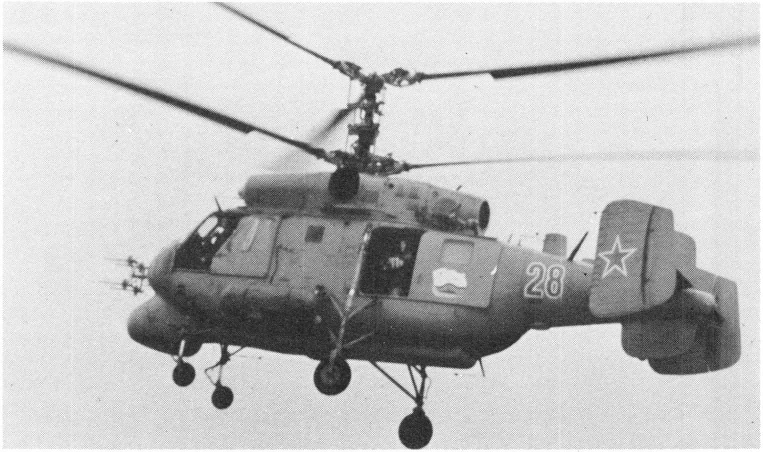
A flying crane designed to lift heavy bulk loads, the S-64 first flew in 1962 and was adopted by the US Army as the CH-54A Tarhe. Special standardised containers can be slung under the fuselage boom. With a maximum loaded weight of 9,072kg, these pods can accommodate 45 combat-equipped troops, 24 stretchers, cargo or other equipment. They can also be adapted in the field to act as surgical units or command and communications posts. A variant with more power and modified rotor system is known as the CH-54B. Civil versions are designated S-64E and S-64F. Range is 370km and maximum cruising speed 204km/h. Production has ceased but some 70 S-64s remain in US Army Reserve service. *Country of origin:* USA. *Silhouette and picture:* S-64.

Kamov Ka-25 'Hormone'

Confusion: 'Hoodlum', 'Helix'

Power: 2 × Glushenkov turboshafts *Rotor dia:* 15.74m *Length:* 9.75m



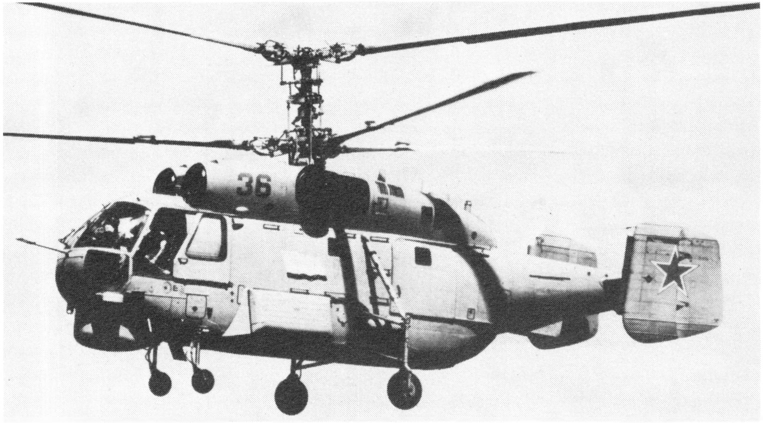


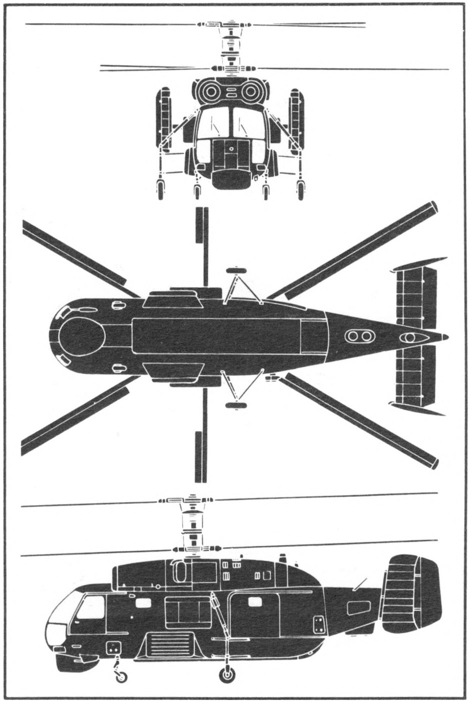
Produced in large numbers, the Ka-25-BSh 'Hormone A' is the CIS standard naval shipborne anti-submarine helicopter. Distinguished by a large chin radome, it carries depth charges, torpedoes and guided missiles. Twin main rotors are mounted on a single shaft. A transport version seats 12, while 'Hormone B' carries special electronics equipment and Ka-25PS 'Hormone C' used missile mid-course guidance. Over 450 Ka-25s were built. Cruising speed is 193km/h and range 402km. *Country of origin:* Russia. *Silhouette and picture:* 'Hormone A'.

Confusion: 'Hormone', 'Hoodlum'

Kamov Ka-27 'Helix'

Power: 2 × Isotov turboshafts *Rotor dia:* 15.9m *Length:* 11.3m



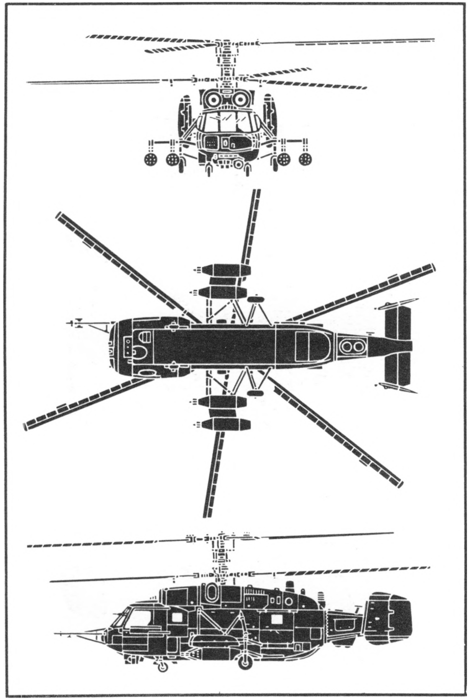


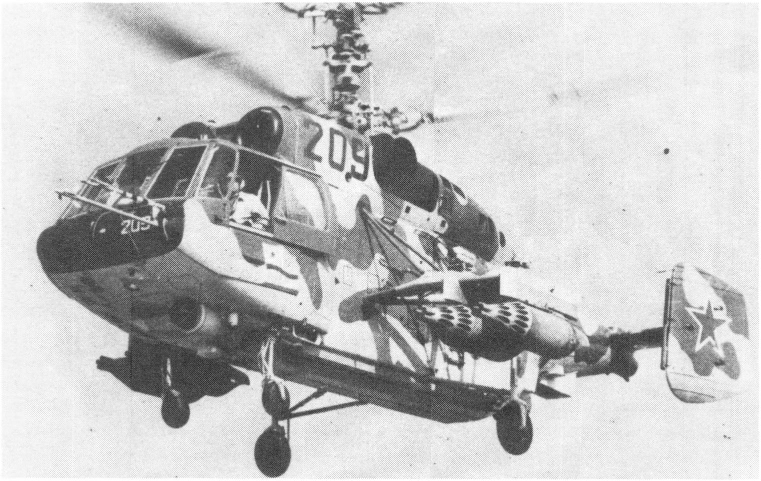
First observed aboard a Russian cruiser in 1981, this latest Kamov helicopter is designated Ka-27 and is NATO code-named 'Helix'. The layout of 'Helix' is similar to that of 'Hormone' but the former is significantly larger and heavier, with a longer fuselage, increased rotor diameter and two instead of three fins. 'Helix' is basically an anti-submarine helicopter, with two pilots and three sensor operators. Ka-27PL 'Helix A' is the ASW version, Ka-27PS 'Helix D' is for search and rescue and Ka-28, the export version. Ka-32S, T and K are civil versions. *Country of origin:* Russia. *Silhouette and picture:* 'Helix A'.

Kamov Ka-29TB 'Helix B'

Confusion: 'Hormone', 'Helix A', 'Helix D'

Power: 2 × TV3-117VK turboshafts *Rotor dia:* 15.9m *Length:* 11.6m



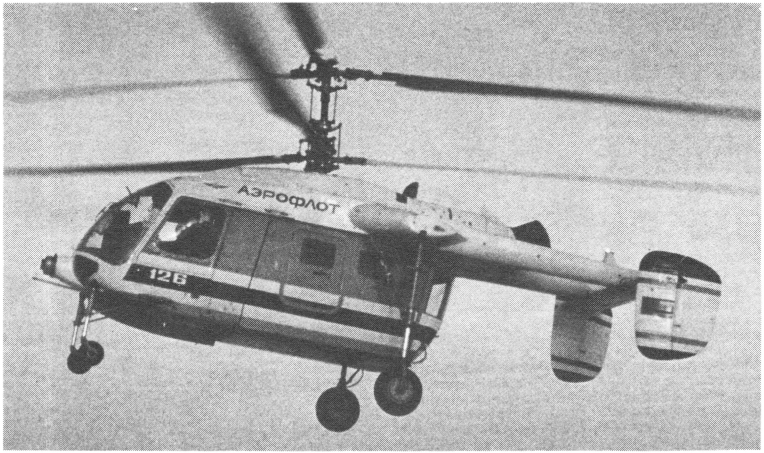


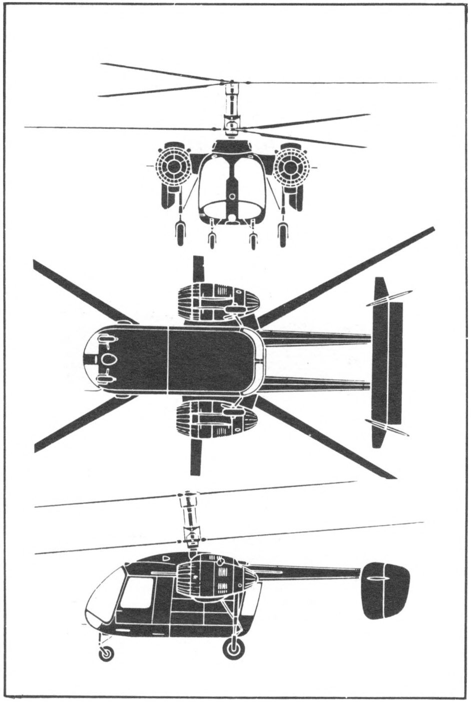
The Ka-29TB NATO code-named 'Helix B' is a development of the Ka-27 'Helix' for use as a maritime transport and for close support of assault troops, of which up to 16 can be carried. Extensive use is made of armour protection and outriggers carry four pylons mounting air-to-surface missiles or rocket pods. A four-barrel Gatling machine gun is on the nose starboard side. A variant of the Ka-29TB is used for electronic warfare, with two panniers on each side of the fuselage and another pannier running the full length of the fuselage underside. *Country of origin:* Russia.

Confusion: 'Hormone', 'Huskie'

Kamov Ka-26 'Hoodlum A'

Power: 2 × Vedeneev piston engines *Rotor dia:* 13m *Length:* 7.75m



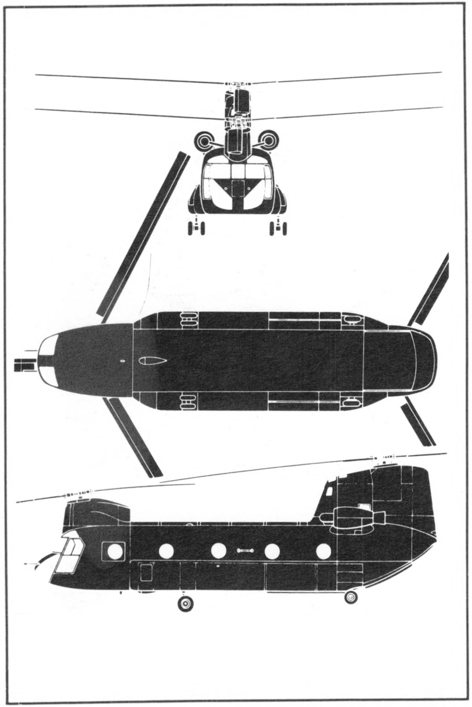


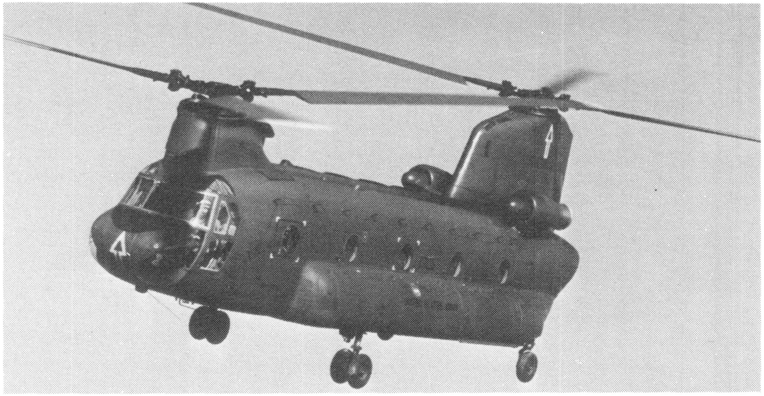
First flown in 1956, the Ka-26, NATO code-named 'Hoodlum A', is a light transport and agricultural helicopter in large-scale service in eastern Europe and exported to such countries as Germany, Sweden and Sri Lanka. Payloads are interchangeable by the use of specialised fuselage pods designed for the transport, ambulance, cropdusting/spraying and geophysical survey roles. Carrying seven passengers, 'Hoodlum' has a range of 400km. A single turboshaft-engined version is the Ka-126 'Hoodlum B', which is being built by IAR in Romania. *Country of origin:* Russia. *Silhouette:* Ka-26. *Picture:* Ka-126.

Boeing Vertol CH-47 Chinook

Confusion: Sea Knight

Power: 2 × T55 turboshafts *Rotor dia:* 18.29m *Length:* 15.54m



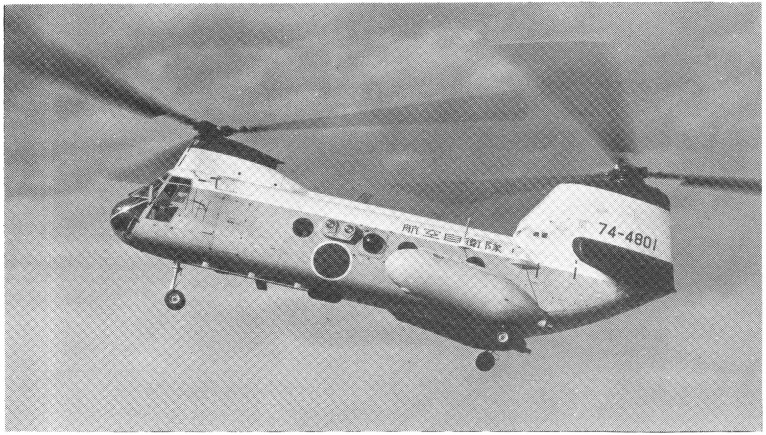


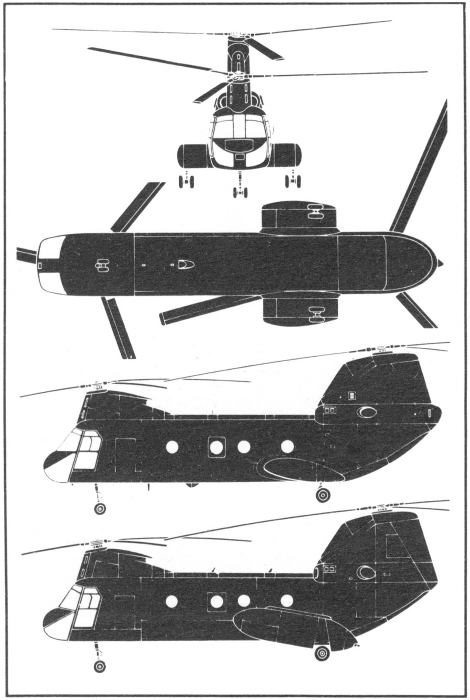
Many hundreds of tandem-rotor Chinook helicopters have been built. In addition to US production, the type is made under licence in Italy. Initial variant was the CH-47A, followed by the uprated CH-47B. A later production model was the CH-47C with more range and better performance. The US Army has upgraded all its Chinooks to a new -47D standard. The RAF operates the Chinook designated HC Mk1 and there have been exports to other countries. Up to 44 troops can be carried in the cabin and large loads can be slung. The international military version is the Model 414. The commercial passenger version is the Model 234. A version for US Special Operations Forces is designated MH-47E. *Country of origin:* USA. *Silhouette and picture:* CH-47C.

Confusion: Chinook

Boeing Vertol H-46 Sea Knight/Model 107

Power: 2 × T58 turboshafts *Rotor dia:* 15.54m *Length:* 13.66m



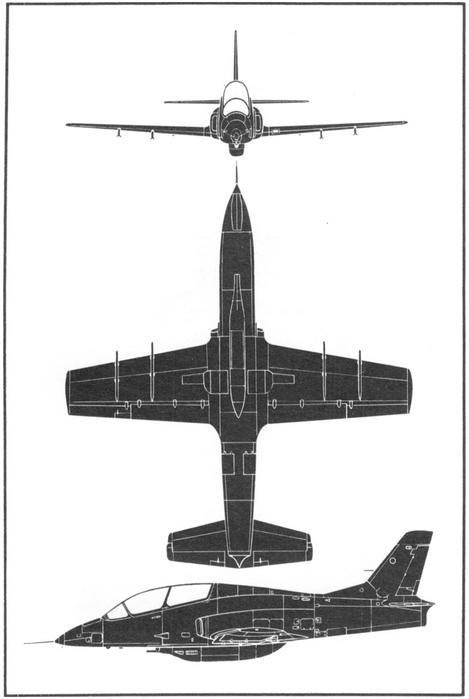


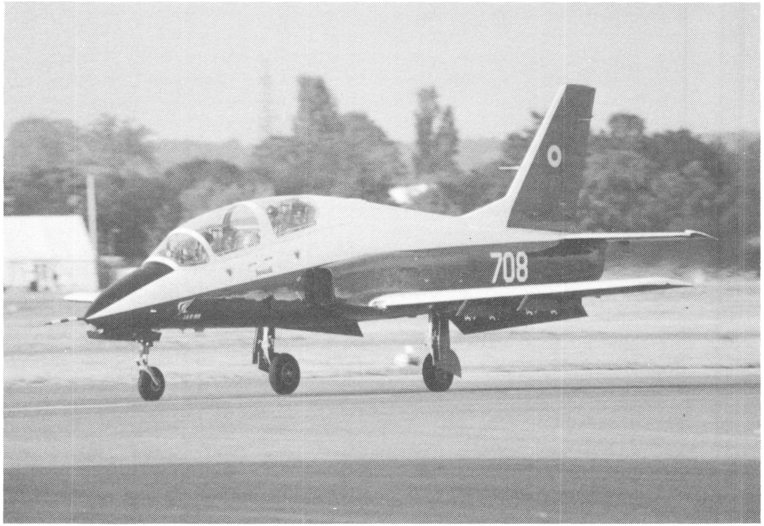
The Sea Knight operates as a shipboard and land-based assault transport carrying 25 troops or freight. First flown in 1958, the Sea Knight has been built in a variety of versions: the CH-46A, -46D, -46E and -46F for the US Marines, and the UH-46A and -46D for the US Navy. Canada operates the type under the designations CH-113 and CH-113A, while Sweden bought some Rolls-Royce Gnome-powered HKP-4s. The commercial version is the Model 107, now solely built by Kawasaki, which also supplies a military KV-107 to the Japanese forces. Range is 1,022km and cruising speed 248km/h. *Countries of origin:* USA/Japan. *Main silhouette:* H-46; *lower side view:* Kawasaki KV-107. *Picture:* KV-107/II-5.

IAR-99 Șoim

Confusion: MBB-339

Power: 1 × Viper turbojet *Span:* 9.85m *Length:* 11m



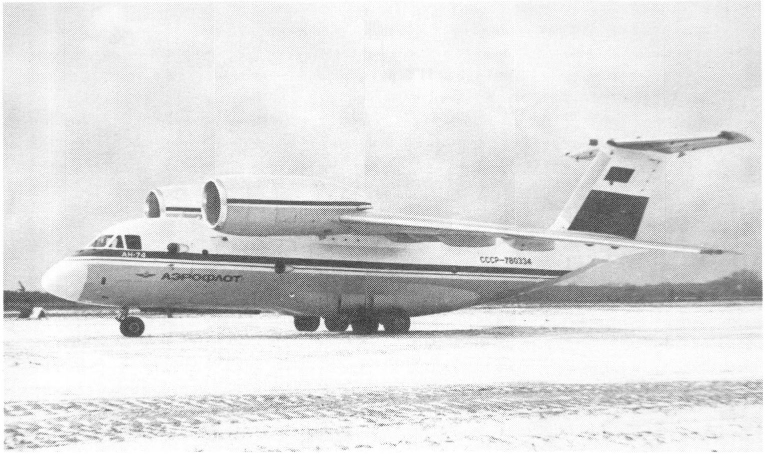


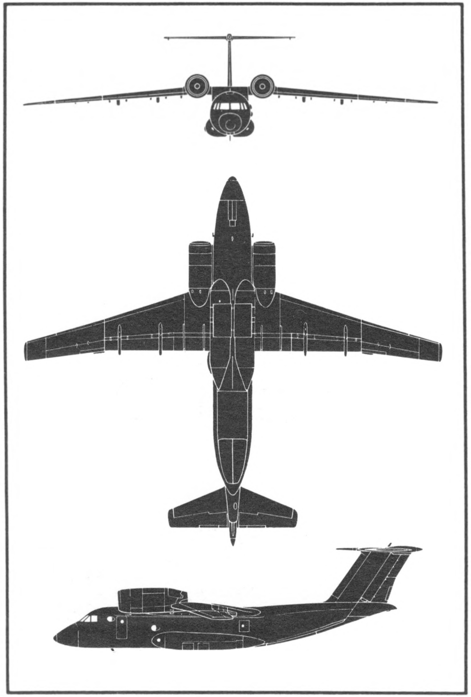
First flown in December 1985, the IAR-99 is a two-seat advanced trainer/ground attack aircraft now in service with the Romanian Air Force. Powered by a Romanian-built Rolls-Royce Viper engine, the IAR-99 has a maximum level speed of 865km/h and a range, as trainer, of 1,100km. A ventral gun pod can be fitted and four underwing hardpoints can carry bombs, rockets, machine gun pods or auxiliary fuel tanks. *Country of origin:* Romania.

Confusion: —

Antonov An-72/74 'Coaler'

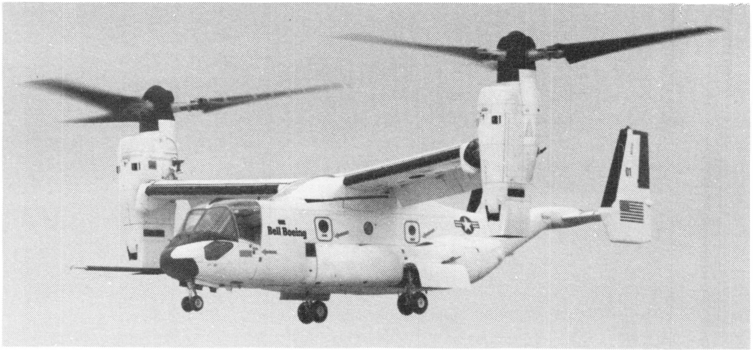
Power: 2 × D-36 or D-436 turbofans *Span:* 31.89m *Length:* (An-72) 28.07m



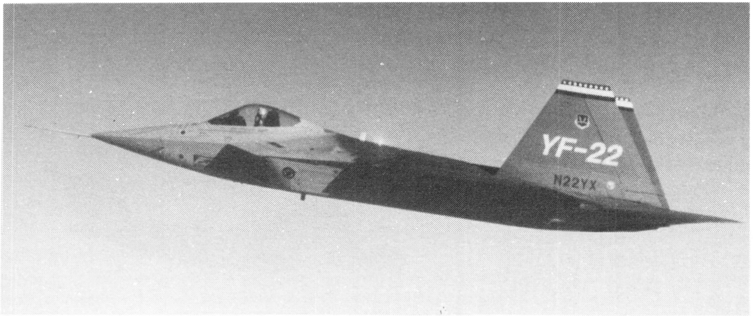


An unusual design, the An-72 is a high wing transport with engines flanking the fuselage and exhausting over the wing. NATO code-named 'Coaler', the An-72 first flew in December 1977. An-72A is the basic version, An-72AT is all-cargo and An-72S is an executive transport, all coded 'Coaler-C'. An all-weather Arctic/Antarctic development is the An-74 with A, TK, TK-100 and P-100 variants, all under the NATO code-name 'Coaler-B'. The An-74 cruises at 550-600km/h and has a range of 4,200km with 1,500kg payload. One An-72 was fitted with an AEW rotodome on the fin and code-named 'Madcap'. *Country of origin:* Ukraine. *Silhouette and picture:* An-74.

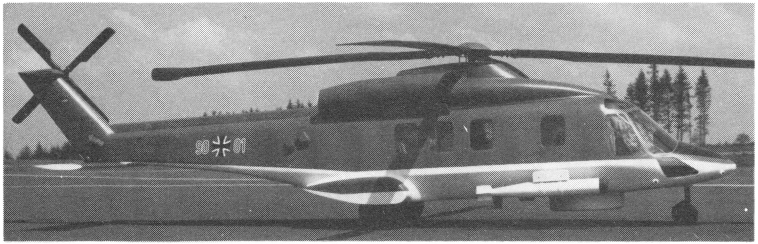
A selection of aircraft coming into service in the future and those still around but few in number



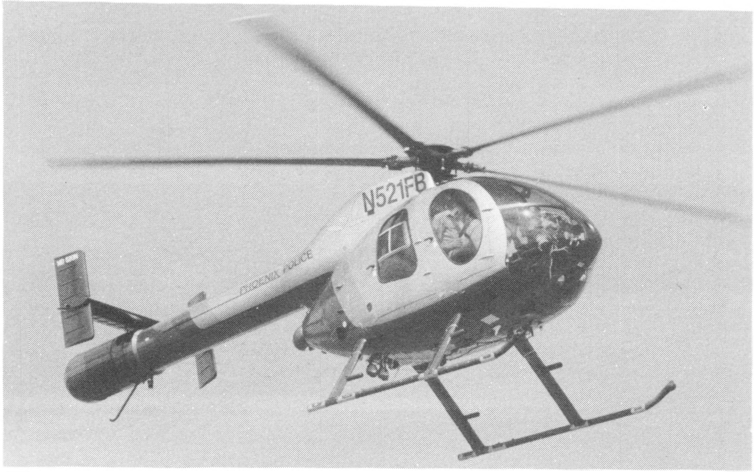
As this edition went to press, a decision was still awaited on whether the Bell/Boeing V-22 Osprey would be ordered into production for the US Marines. An unusual design, the V-22 is a vertical lift, tilt-rotor multi-mission aircraft intended to replace Sea Knight and Sea Stallion helicopters. The V-22 first flew in March 1989.



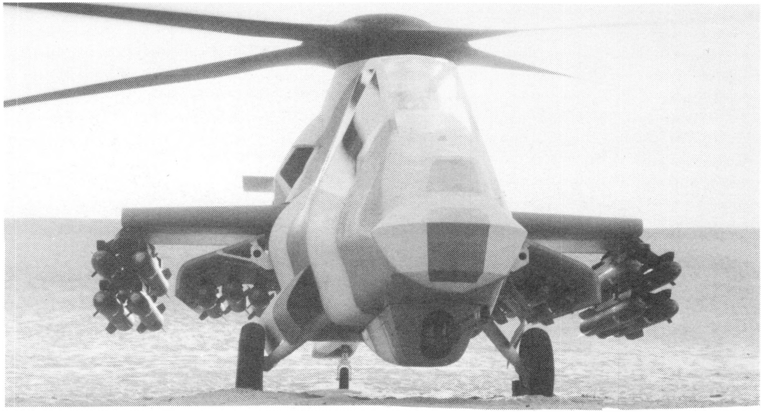
The USAF Advanced Tactical Fighter is to be built by Lockheed/General Dynamics/Boeing as the F-22 to replace the F-15 Eagle from 2000 onwards. Shown here is a prototype, the YF-22.



Four nations, France, Germany, the Netherlands and Italy are combining to produce the NH90 (NATO Helicopter 90) for tactical transport and maritime work. Powered by two RTM322 turboshaft engines, the NH90 is expected to fly late in 1994. *Picture:* mock-up.

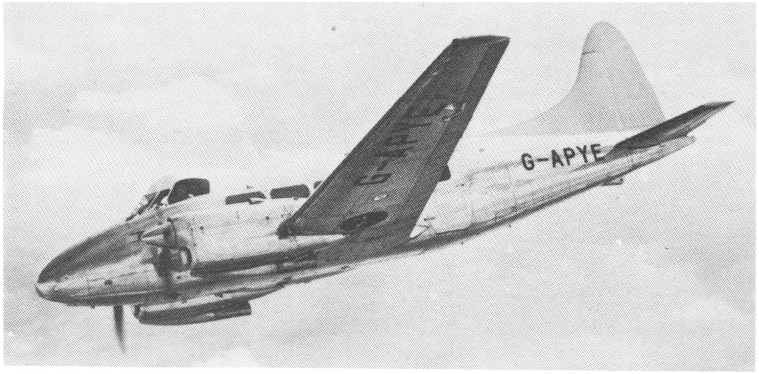


The McDonnell Douglas MD520N and 530N are two new helicopters developed from the MD500. They are unique in having no tail rotor, the NOTAR system providing anti-torque and steering control. 530N flew in December 1989 and 520N in May 1990.



The Boeing/Sikorsky RAH-66 Commanche design was the winner of the US Army light helicopter competition. First flight is expected in 1994. Over 1,000 are to be built. *Picture:* mock-up.

The Trident tri-motor airliner first went into service in the early 1960s with British European Airways. China bought a fleet of Trident 2Es and 3Bs. These have been phased out of airline service but some 10 remain as government transports.

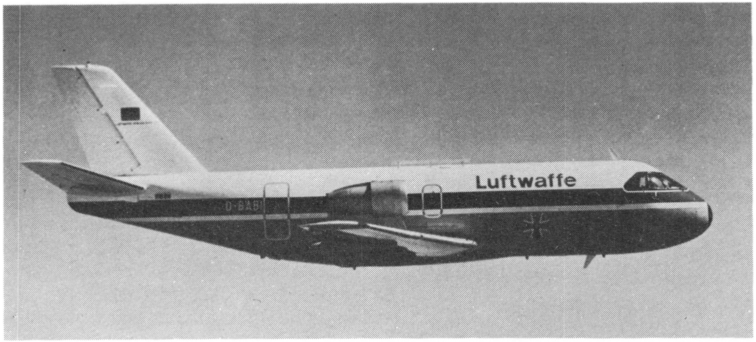


Some 530 Dove light transports were built and were widely sold round the world. A small number of Doves were re-engined in the USA and fitted with a swept fin and rudder.

apache airlines
N12333

A scaled-up four-engined Dove, the Heron first flew in 1950. A number were later converted to take supercharged engines. The picture shows a Riley turbo Skyliner conversion.

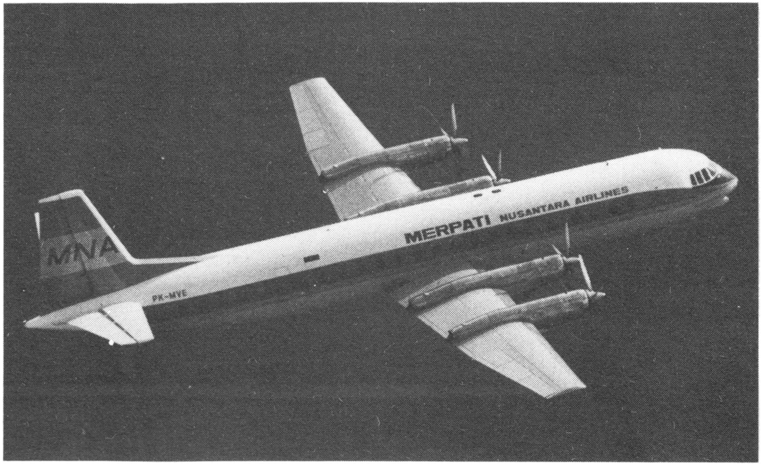
Having served with 25 nations, the F-86 Sabre, which won its spurs against the MiG-15 in Korea remains in front-line service only in South America. Many have been converted into remotely piloted vehicles.



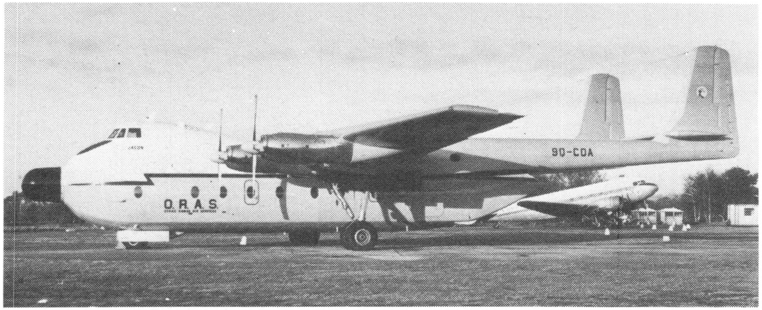
Three VFW 614s remain in service with the German Air Force for communications and VIP work. The type is unusual in having the engines mounted on pylons above the wings.

AFREK
G-BDUP

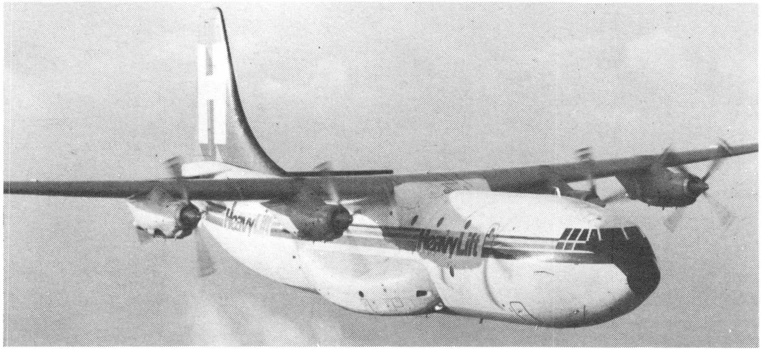
A handful of Proteus turboprop Britannias remains in service, together with 10 of the Canadian built CL-44s with Rolls Royce Tyne engines.


MNA
MERPATI NUSANTARA AIRLINES
PK-MVE

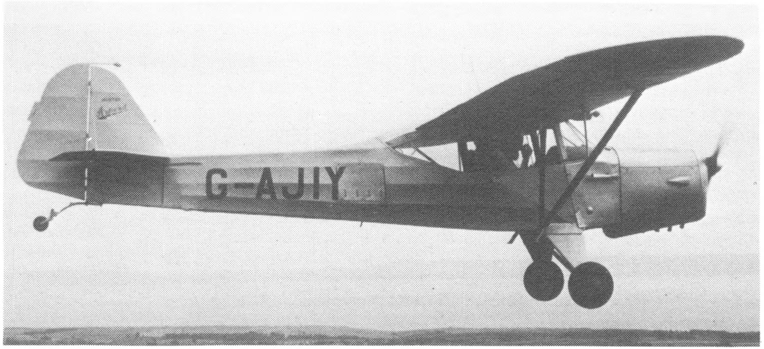
The freighter version of the Vanguard, named Merchantman, remains in service in small numbers.



Originally in RAF service, the Argosy rear loading freighter is still used in small numbers for civil operations.


HeavyLift
HeavyLift

HeavyLift Cargo Airlines continues to use a small number of Shorts Belfast heavy freighters on charter services round the world.



The Auster range of British light aircraft were widely used and a number are still flying. The J/1 Autocraft, illustrated here, was the first post-World War 2 product of the Auster company.

When production of the Czech Aero 145 four/five-seat twin finished in 1961, a total of 700 had been built. Over 600 aircraft were exported.

GLOSSARY OF RECOGNITION TERMS

aerofoil section Cross-section through an aircraft wing or helicopter rotor blade.
AEW Airborne early warning.
afterburner Gives a jet engine greatly increased thrust by burning fuel in the exhaust gas stream. Also called reheat.
aileron Wing-mounted lateral control surface.
airbrake Retractable 'door' mounted on the fuselage or wing and used to slow the aircraft down or steepen descent angle.
AI Airborne intercept radar.
all-up weight Fully loaded weight of an aircraft or helicopter.
amphibian Aircraft capable of alighting on both land and water.
Angle of attack (alpha) Angle at which the airstream meets an aerofoil.
anhedral Angle at which a wing slopes down from the horizontal in the head-on view. Opposite of dihedral.
antenna Any form of aerial for the transmission/reception of radio/radar signals.
arrester hook Underfuselage hook designed to engage wires on an airfield or a carrier deck in order to stop the aircraft.
aspect ratio The ratio between the span and chord of a wing. Derived by dividing span by chord.
ASV Air-to-surface-vessel radar. Used by maritime aircraft.

balance tab Part of an aileron, elevator or rudder which moves into the opposite sense to the main control surface.
bank/banking Manoeuvre in which the aircraft is rolled to left or right.
bicycle undercarriage Two main wheels in tandem under the fuselage. Usually with outrigger wheels on the wings.
bogie undercarriage Four or more wheels on each undercarriage leg.

camber Curvature of an aerofoil section.
canard Aircraft with its tailplane mounted forward of the wing.
canopy Transparent cockpit cover.
cantilever Wing or undercarriage without bracing struts.
c of g Centre of gravity.
chord Measurement from the leading-edge to the trailing-edge of a wing or rotor blade, parallel with the fuselage centreline.
CO-IN Counter-insurgency.
contrail White vapour trail caused by the condensation of the water in engine exhaust gases at certain altitudes.
contra-rotating propellers Two propellers mounted on one shaft and rotating in opposite directions.
crescent wing Sweptback wing with varying degrees of sweep on the leading-edge.

delta Triangular wing or tailplane.
dihedral Angle at which a wing slopes up from the horizontal in the head-on view. Some wings have dihedral on the outer sections only. Opposite of anhedral.
dogtooth Notch in a wing leading-edge, visible in the plan view. Also known as a sawtooth.
dorsal fin Extension of the main fin along the top of the fuselage.
drag The resistance offered by the air to an aircraft or part of an aircraft passing through it.
drone Pilotless aircraft used for reconnaissance, electronic warfare or as a target. Also known as a remotely piloted vehicle (RPV).
droop Means of increasing the camber and therefore the lifting capacity of a wing by mechanically extending and lowering the leading-edge.

ECM Electronic countermeasures. Means of jamming or distorting radio or radar signals.
ECCM Electronic counter-countermeasures. Means of overcoming ECM.
ejection seat Seat designed to fire aircrew clear of the aircraft in an emergency.
elevator Tailplane-mounted surface used to control an aircraft in the vertical plane.
elevon Combined elevator and aileron; used on delta-wing aircraft.

fence Vertical metal strips mounted chordwise on a wing upper surface to contain spanwise airflow.

fenestron Multi-blade tail rotor mounted in a duct.
fin Fixed part of a vertical tail.
flap Surface mounted at the wing trailing-edge and deployed to increase lift for take-off and landing.
flaperon Trailing-edge surface combining the functions of flap and aileron.
flat four Horizontally opposed four-cylinder piston engine. Also flat twin and flat six.
flight refuelling Means of passing fuel from one aircraft to another in the air. Under the British system the 'tanker' aircraft trails a hose with a drogue at the end, into which a probe on the receiving aircraft is inserted. The American system is based on a 'flying boom' which can be directed to a receiving point on the aircraft which is being refuelled.
flying tail Tailplane which has no fixed portion and moves in its entirety to give vertical control.
foreplane Forward control surface on a canard aircraft.
fuselage Main body of an aircraft or helicopter.

gull wing A wing with dihedral on the inner sections only. An inverted gull wing has anhedral on the inner sections.

hardpoint Reinforced point, usually on the wings, to which external stores can be attached.

JATO Jet-assisted take-off. Technique under which auxiliary rocket packs are mounted on the aircraft to shorten the take-off run. Also known as RATO (rocket-assisted take-off).

leading-edge The front edge of a wing, tail or rotor blade.
lift The upward force which keeps an aircraft flying.

Mach number The ratio between the speed of an aircraft and the speed of sound at a particular height. At sea level the speed of sound is 720 mph, so that an aircraft travelling at 720 mph would be flying at Mach 1; 576 mph under the same conditions would be equivalent to Mach 0.8. The speed of sound decreases with altitude up to 36,600ft; thereafter it stays constant at 660.6 mph.
mass balance Weight mounted internally or externally on a control surface to prevent damaging oscillation.
monocoque Aircraft structure in which the outer skin takes most of the load.

nacelle Streamlined structure housing engines, radar or other equipment.

parasol Monoplane with wings mounted on struts above the fuselage.
payload Paying load of a transport, i.e. passengers or freight.
pitot tube Instrument which detects ram air pressure. This is compared with static pressure to find airspeed.
pod Separate nacelle attached to fuselage or wing and carrying an engine, radar or other equipment.
pressurisation The maintenance of pressure inside an aircraft so that passengers and crew can breathe without personal oxygen supplies at high altitude.
pylon Wing or fuselage-mounted structure carrying engine pods, auxiliary fuel tanks or weapons.

radome Dome-shaped fairing over a radar aerial.
refuelling probe Used to receive fuel from an airborne tanker.
reheat See *Afterburner*.
rotor blade Helicopter lifting and control surfaces. A rotor is made up of two or more blades. The main rotor generates lift and creates propulsive thrust. The vertically mounted tail rotor balances out the torque which makes the fuselage tend to rotate in the opposite direction to the main rotor.
rudder A fin-mounted vertical surface which provides directional control.

servo tab Moving surface on aileron, elevator or rudder which when moved causes the main control surface to deflect in the opposite direction.
slat Section of wing leading-edge which moves forward to produce a slot between itself and the wing. Increases lift and improves control at low speeds.
slot Spanwise gap at the wing leading-edge (see *slat*).

slotted flap Flap which creates a slot between itself and the wing trailing-edge.

sonobuoy Listening device dropped from an aircraft to detect submarines.

split flap Flap which is hinged forward of the wing trailing-edge, so that the wing upper surface is unchanged when the flap is lowered.

spoiler Retractable wing-mounted surface deployed to create drag and reduce lift. Used to slow the aircraft and control its descent path.

sponson Stub wing carrying undercarriage or other equipment.

spring tab Small control surface which acts as both balance tab and servo tab.

SST Supersonic transport.

stabiliser Tailplane (US).

Stealth Technology for making aircraft as undetectable as possible, particularly by radar.

STOL Short take-off and landing.

STOVL Short take-off, vertical landing.

subsonic Speeds below that of sound, i.e. less than Mach 1.

supercharger Compressor used to boost the power of a piston engine. Also called a turbocharger.

supersonic Speeds in excess of sound, i.e. above Mach 1.

sweepback Plan-view angle between the wing and the fuselage centreline.

taileron Tailplane used as a primary control surface in both pitch and roll.

tailplane Horizontal surface at the rear of an aircraft which normally carries the elevators.

taper The decrease in wing chord from roof to tip.

thickness/chord ratio Ratio of the thickness of the wing section to the chord at a given point. Usually expressed as a percentage.

thrust The force that moves an aircraft forward. Also used to express the power of a jet engine.

thrust reverser System which turns the thrust of a jet engine forwards for braking purposes.

transonic Speeds just above and below Mach 1.

trim tab Adjustable tab on a control surface.

turbofan A jet engine with a large fan on the front which passes air round the core of the engine and also gives more impetus to the compressor.

turbojet An engine in which the hot gases expelled at the rear provide all the propulsive thrust.

turboprop A gas turbine engine in which the shaft is geared to drive a propeller.

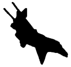
turboshaft A gas turbine in which the power is transmitted to a shaft, usually to drive a helicopter rotor.

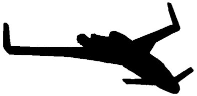
vortex generators Small protruding plates fitted to wing, tail or fuselage to change the airflow pattern.

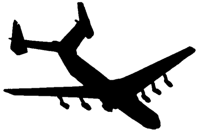
wing loading Aircraft loaded weight divided by wing area.

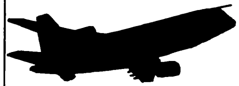
Test your aircraft-recognition skill by identifying these sillograph outlines of well known aircraft. Tackle the whole test in one go, and write down your answers. The solution is on the last page.

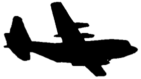
SILLOGRAPH PROFICIENCY TEST

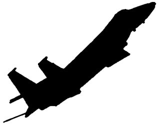

1

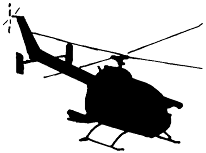

2


3

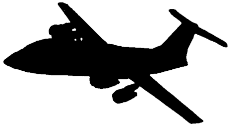

4

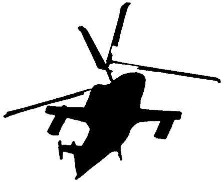

5

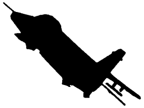

6

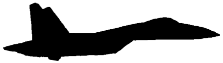

7

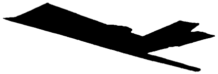
8

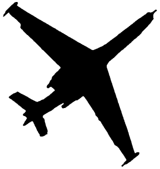

9

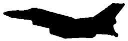

10

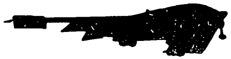

11

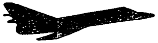

12

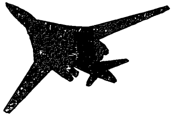

13

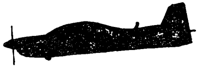

14

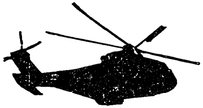

15

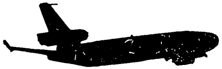

16

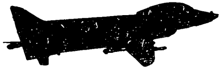

17

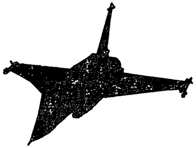

18

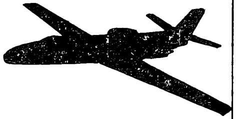

19

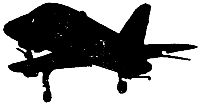

20

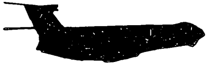

21

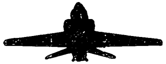

22

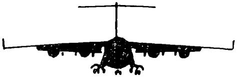

23

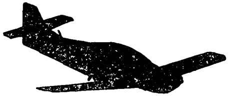

24

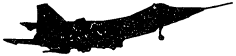

25

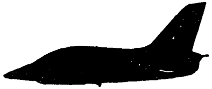

26


27

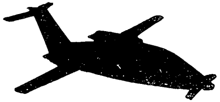

28


29

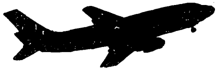

30



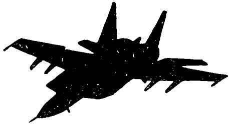
31



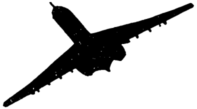
32



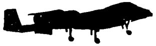
33



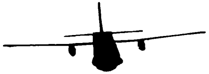
34



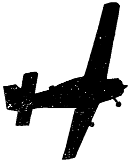
35



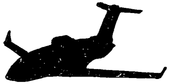
36



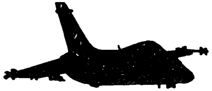
37



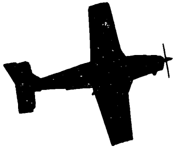
38



39

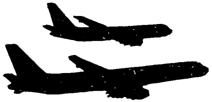


40

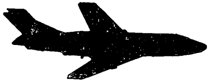


41

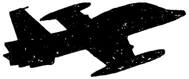
42



43



44



45

INDEX

Page

A

A-1 Ching Kuo 227
A-3 Skywarrior 132
A-4 Skyhawk 225
A-6 Intruder/Prowler 109
A-7 Corsair II 105
A9B-M Quail 468
A-10A Thunderbolt II 211
A-37 Dragonfly 251
A109 553
A-122 Uirapuru 446
A129 Mangusta 565
A300 138
A310 139
A320 136
A330 142
A340 154
AA-1/T-Cat/Lynx 430
AA-5A/AA-5B 429
AAMSA, A9B-M Quail 468
Abeille/D.150 Mascaret 460
ADV 233
Aeritalia,
  AM-3C 484
Aermacchi,
  MB-326 258
  MB-339A 259
Aero,
  145 611
  L-29 Delfin 'Maya' 249
  L-39 Albatros 265
Aerobat 497
Aero Boero, 95/115/180 477
Aero Spacelines, Guppy 382
Aerospatiale,
  Alouette II 537
  Alouette III 538

Page

  AS.321 Super Frelon 574
  AS.332 Super Puma/AS.532 Cougar 573
  AS350/355 Ecureuil/Astar/Twinstar/Fennec 558
  AS 565 Panther 542
  Caravelle 171
  Magister 271
  N 262/Frégate 341
  SA.341/342 Gazelle 539
  SA.360 and SA.361H Dauphin 540
  SA.365 Dauphin 2 541
  SN601 Corvette 196
Aerospatiale/BAe, Concorde 221
Aerospatiale/Westland, AS.330 Puma 572
Aerostar 297
Aero Subaru 444
Aerotec, A-122 Uirapuru 446
Agusta,
  A109 553
  A129 Mangusta 565
Agusta/Sikorsky, S-61L/S-61N 575
Ag Wagon/Ag Truck 466
AH-1 HueyCobra 564
AH-64A Apache 586
AIDC,
  A-1 Ching Kuo 227
  AT-3 262
  PL-1B Chiensou 433
  T-CH-1 420
Airbus, A320 136
Airbus Industrie,
  A300 138
  A310 139
  A320 136
  A330 142
  A340 154
Airtech, CN-235 354
Air Tractor AT-401/501/502/503 471
Airtrainer CT4 431

Page

Airtruk 532
Albatros 265
Albatross 511, 515
Alenia, G222 352
Alenia/Aermacchi/EMBRAER, AMX 103
Alizé 426
Allianz C-160 Transall 353
Alouette II 537
Alouette III 538
Alpha 536
Alpha Jet 101
AM-3C 484
Ambassadeur/Sicile 459
AMX 103
An-2 'Colt' 524
An-12 'Cub' 384
An-14 'Clod' 367
An-22 'Cock' 386
An-24 'Coke'/An-26 'Curl' 345
An-28 'Cash' 368
An-30 'Clank' 346
An-32 'Cline' 347
An-72/74 'Coaler' 603
An-124 'Condor' 163
An-225 164
Antonov,
  An-2 'Colt' 524
  An-12 'Cub' 384
  An-14 'Clod' 367
  An-22 'Cock' 386
  An-24 'Coke'/An-26 'Curl' 345
  An-28 'Cash' 368
  An-30 'Clank' 346
  An-32 'Cline' 347
  An-72/74 'Coaler' 603
  An-124 'Condor' 163
  An-225 164
Apache 290, 586

Page

Arava 526
Argosy 610
Arrow 408
Arrow IV/Turbo Arrow IV 425
AS 202 Bravo 440
AS.321 Super Frelon 574
AS.330 Puma 572
AS.332 Super Puma/AS.532 Cougar 573
AS350/355 Ecureuil/Astar/Twinstar 558
AS 565 Panther 542
ASTA, Nomad 365
AStar/TwinStar/Fennec 558
Astra 191
AT-3 262
AT-401/501/502/503 471
ATL Club 407
Atlantic 285
Atlas,
  C4M Kudu 493
  Cheetah 218
ATP 319
ATR42/ATR72 Avions de Transport Regional 355
AU-24A Stallion 492
Auster, J/1 Autocraft 611
AV-8B 100
Avanti 337
Aviocar 358
Aviojet 261
Avions de Transport Régional, ATR42/ATR72 355
Avions Pierre Robin, ATL Club 407
Ayres, Thrush/Turbo Thrush 473
Aztec 291

B

B-1B 240
B-2 245, 560

Page

B-52 Stratofortress 157
B99 Airliner 302
'Backfire' 241
'Badger' 127
Bandeirante 322
Baron 288
Basant 467
Be-12 Mail 513
Be-42 Albatross 515
'Beagle' 273
'Bear' 166
Beaver 485
Beech,
  18 331
  Sundowner 180/Sport 150 428
Beechcraft,
  1900C 327
  B99 Airliner 302
  Baron 288
  Bonanza 33/36 405
  Bonanza Model V35B 406
  Duchess 76 324
  Duke 299
  King Air 301
  Model 400 Beechjet/Diamond 189
  Queen Air/Seminole 300
  Sierra 200 416
  Skipper 451
  Starship 1 339
  Super King Air 200 326
  T-34 Mentor/T-34C 399
Beechjet 189
Belfast 610
Bell,
  AH-1 HueyCobra 564
  Model 47 535
  Model 204/UH-1 Iroquois 544
  Model 205/UH-1 Iroquois/Model 205A-1 546

Page

  Model 206 JetRanger/OH-58 Kiowa 548
  Model 206L LongRanger 552
  Model 212/Model 212ASW 545
  Model 214A/214B/214ST 547
  Model 222 554
Bell/Boeing, V-22 Osprey 604
Bellanca,
  Citabria/Scout/Decathlon 478
  Model 25 SkyRocket II 417
  Viking 404
Belphegor 531
Beriev,
  Be-12 Mail 513
  Be-42 Albatross 515
Bird Dog 482
BK 117 549
Black Hawk 588
'Blackjack' 242
'Blinder' 177
BO 105 557
BO 108 550
Boeing,
  707 149
  727 189
  737-100/200 133
  737-300/400 134
  737-500 135
  747 155
  747-400 156
  757 141
  767 140
  777 146
  B-52 Stratofortress 157
  E-3A Sentry 151
  KC-135 150
Boeing/Sikorsky, RAH-66 Commanche 606
Boeing Vertol,
  CH-47 Chinook 600

Page

Boeing Vertol (contd)
  H-46 Sea Knight/Model 107 601
Bonanza 33/36 405
Bonanza Model V35B 406
BR 1050 Alizé 426
Brantly,
  305 561
  B-2 560
Brasilia 328
Brave 463
Bravo 440
Breguet, BR 1050 Alizé 426
'Brewer' 131
Britannia 609
British Aerospace (BAe),
  125 184
  125 Series 800 184
  146 165
  748 316
  1000 186
  ATP 319
  Buccaneer 117
  Bulldog/Pup 448
  Canberra 274
  Harrier 98
  Harrier GR5 100
  Hawk 100 112
  Hawk 200 114
  Hunter 116
  Jetstream 31 313
  Jetstream 41 314
  Nimrod MR2 125
  One-Eleven 172
  Sea Harrier 99
  Strikemaster 257
  VC10/Super VC10 181
  Victor 126
British European Airways, Trident 606

Page

Bronco 529
Broussard 487
Buccaneer 117, 506
Bucker, Jungmann/Jungmeister 521
Buckeye 272
Buffalo 349
Bulldog/Pup 448

C

C-1 Trader 342
C-1A 130
C4M Kudu 493
C-5 Galaxy 162
C-17A 161
C-23A 370
C-46 Commando 284
C-54 Skymaster 379
C-101 Aviojet 261
C-119 Flying Boxcar 528
C-123 Provider 351
C-130 Hercules 383
C-141B Starlifter 158
C-160 Transall 353
C-212 Aviocar 358
'Camber' 152
Canadair,
  Challenger 198
  CL-41 Tutor 246
  CL-215 512
  Regional Jet 199
Canberra 274
'Candid' 159
CAP 10/CAP 20/CAP 21 456
Caravan 1 502
Caravelle 171
Cardinal/Cardinal RG 499

Page

'Careless' 179
Caribou 348
CASA,
  C-101 Aviojet 261
  C-212 Aviocar 358
'Cash' 368
CD-2 507
CE.43 Guepard 411
Centurion 503
Cessna,
  208 Caravan 1 502
  310 293
  340A 296
  401/402 308
  414A Chancellor 310
  421 Golden Eagle 306
  425 Conquest I 307
  441 Conquest II 303
  A-37 Dragonfly 251
  Ag Wagon/Ag Truck 466
  Cardinal/Cardinal RG 499
  Citation I/II 202
  Citation III 170
  Citation Jet 204
  Citation S/11 203
  Model 150/152 Aerobat 497
  Model 172 Skyhawk/T-41 Mescalero 496
  Model 180/Model 185 Skywagon 480
  Model 182 Skylane/Rocket 498
  Model 210/Centurion 503
  Model 337 Skymaster/O-2 525
  O-1 Bird Dog 482
  Stationair 6 500
  Stationair 7/Stationair 8 501
  T303 Crusader 298
  Titan 305
CH-3E/HH-3F Pelican 579
CH-47 Chinook 600

Page

CH-53 Sea Stallion 590
CH-53E Super Stallion 591
CH-54 Tarhe 595
Challenger 198
Chancellor 310
Charlie 495
Cheetah 218
Cherokee 438
Cheyenne II/XL 309
Cheyenne III/IIIA/400 325
Chieftain 304
Chiensou 433
Ching Kuo 227
Chinook 600
Chipmunk 454
Citabria/Scout/Decathlon 478
Citation I/II 202
Citation III 170
Citation Jet 204
Citation S/11 203
CL-41 Tutor 247
CL-215 512
'Clank' 346
'Classic' 182
'Cline' 347
'Clobber' 183
'Clod' 367
Club 407
Cmelak 474
CN-235 354
'Coaler' 603
'Cock' 386
'Codling' 210
'Coke' 345
'Colt' 524
Commanche 606
Commander 334
Commander 122/114 410

Page

Commando 284, 578
Concorde 223
'Condor' 163
Conquest I 307
Conquest II 303
Convair,
  540/580/600/640 280
  CV-240/340/440 Metropolitan 279
'Coot' 375
Corsair II 105
Corvette 196
'Cossack' 164
Cougar 292, 573
CP 301 Emeraude 457
'Crate' 282
Cresco 450
Crusader 104, 298
'Crusty' 178
CT4 431
'Cub' 384
'Curl' 345
Curtiss, C-46 Commando 284
CV-240/340/440 Metropolitan 279
CZAAL, L-40 Meta-Sokol 389

D

D.11/D.112/D.117 458
D.140 Mousquetaire/Abeille/D.150 Mascaret 460
Dakota 283
Dash 7 385
Dash 8 350
Dassault-Breguet,
  Atlantic 285
  Etendard IVP 106
  Falcon 50 193
  Mirage III 213

Page

  Mirage IVA/IVP 216
  Mirage 5/50 214
  Mirage 2000 215
  Mirage F1 96
  Mystére-Falcon 10/100 190
  Mystére-Falcon 20/200 192
  Mystére-Falcon 900 194
  Mystére-Falcon 2000 195
  Rafale 221
  Super Etendard 107
Dassault-Breguet/Dornier, Alpha Jet 101
Dauphin 436, 540
Dauphin 2 541
DC-3/Dakota 283
DC-4/C-54 Skymaster 379
DC-6 380
DC-7B/C 381
DC-8 147
DC-8 Super 60/Super 70 148
DC-9 175
DC-10 144
Decathlon 478
Deepak 415
Defender 360
de Havilland,
  D.H.82 Tiger Moth 517
  Dove 607
  Heron 607
Delfin 'Maya' 249
D.H.82 Tiger Moth 517
DH,
  DHC-1 Chipmunk 454
  DHC-2 Beaver 485
  DHC-3 Otter 486
  DHC-4A Caribou 348
  DHC-5 Buffalo/Transporter 349
  DHC-6 Twin Otter 366
  DHC-7 Dash 7 385

- DH (contd)
  - DHC-8 Dash 8 350
- DHC-1 Chipmunk 454
- DHC-2 Beaver 485
- DHC-3 Otter 486
- DHC-4A Caribou 348
- DHC-5 Buffalo/Transporter 349
- DHC-6 Twin Otter 366
- DHC-7 Dash 7 385
- DHC-8 Dash 8 350
- Diablo 1200 522
- Diamond 189
- Do 28B 363
- Do 28D/Do 128 Skyservant 364
- Do 228 340
- Do 328 357
- Dornier,
  - Do 28B 363
  - Do 28D/Do 128 Skyservant 364
  - Do 228 340
  - Do 328 357
  - Seastar CD 2 507
- Douglas,
  - A-3 Skywarrior 132
  - DC-3/Dakota 283
  - DC-4/C-54 Skymaster 379
  - DC-6 380
  - DC-7B/C 381
- Dove 607
- DR 221 Dauphin 436
- DR 400 435
- DR.1050/DR.1051 Ambassadeur/Sicile 459
- Dragonfly 251
- Draken 224
- Dromader 470
- Duchess 76 324
- Duke 299

E

- E-2 Hawkeye 372
- E-3A Sentry 151
- Eagle 119
- Ecureuil/AStar/TwinStar/Fennec 558
- EFA 222
- EHI, EH 101 580
- Electra 377
- Emair, MA-1B Diablo 1200 522
- EMB-110 Bandeirante 322
- EMB-120 Brasilia 328
- EMB-121 Xingu 329
- EMB-201 Ipanema 464
- EMB-312 (T-27) Tucano 395
- EMBRAER,
  - EMB-110 Bandeirante 322
  - EMB-120 Brasilia 328
  - EMB-121 Xingu 329
  - EMB-201 Ipanema 464
  - EMB-312 (T-27) Tucano 395
- Emeraude 457
- ENAER, T-35 Pillán 414
- Enstrom, F-28/Model 280 562
- Epsilon 396
- Etendard IVP 106
- Eurocopter, Tiger 566
- Eurofighter, EFA 222

F

- F1 96
- F-1/T-2 95
- F-4 Phantom II 93
- F-5 267
- F-8 Crusader 104
- F8L 393
- F-14 Tomcat 234
- F-15 Eagle 119
- F-16 Fighting Falcon 226
- F-22 604
- F27 Friendship 343
- F28 Fellowship 173
- F-28/Model 280 562
- F-86 Sabre 608
- F-104 Starfighter 268
- F-111 235
- F-117A 244
- F/A-18A Hornet 269
- FA-200 Aero Subaru 444
- Fairchild,
  - C-119 Flying Boxcar 528
  - C-123 Provider 351
  - Merlin III 311
  - Metro 277
- Fairchild Republic, A-10A Thunderbolt II 211
- Falcon 50 193
- Fantan 92
- Fantrainer 250
- 'Farmer' 90
- Fellowship 173
- 'Fencer' 239
- Fennec 558
- FFA, AS 202 Bravo 440
- Fiat,
  - G.91 86
  - G.91Y 87
- 'Fiddler' 108
- Fighting Falcon 226
- 'Finbak' 229
- Firefly 441
- 'Fishbed' 230
- 'Fitter A' 91
- 'Fitter C' 238
- 'Flagon' 228

Page

'Flanker-B' 123
'Flogger 'B'/'E'/'G'/'K' 236
'Flogger D' 237
Flying Boxcar 528
FMA,
  IA 50 Guarani 278
  IA 58 Pucara 330
  IA 63 Pampa 263
Fokker,
  50 344
  100 174
  F27 Friendship 343
  F28 Fellowship 173
'Forger' ('Forger A') 97
Fournier, RF-6B/RFB RS 180 Sportsman 442
'Foxbat' 120
'Foxhound' 121
Frégate 341
'Fresco' 89
Friendship 343
'Frogfoot' 270
FU-24/Cresco 450
Fuji,
  FA-200 Aero Subaru 444
  KM-2B 400
  T1 Hatsutaka 85
'Fulcrum' 122

G

G-2 Galeb/Jastreb 254
G-4 Super Galeb 115
G-21 Turbo-Goose 509
G.91 86
G.91Y 87
G115 443
G222 352

Page

GA-7 Cougar 292
Galaxy 162
Galeb 254
Gardan/Socata, GY-80 Horizon 403
Gawron 488
Gazelle 539
General Dynamics,
  F-16 Fighting Falcon 226
  F-111 235
Golden Eagle 306
Goshawk 113
Great Lakes, Sports Trainer Model 2T-1A-2 519
Gripen 220
Grob, G115 443
Grumman,
  A-6 Intruder/Prowler 109
  E-2 Hawkeye 372
  F-14 Tomcat 234
  HU-16 Albatross 511
  OV-1/RV-1 Mohawk 287
  S-2 Tracker/C-1 Trader 342
Guarani 278
Guepard 411
Gulfstream Aerospace,
  AA-1/T-Cat/Lynx 430
  AA-5A/AA-5B 429
  GA-7 Cougar 292
  Gulfstream I/I-C 315
  Gulfstream II/III/IV 169
Gulfstream, Commander 334
Gulfstream, I/I-C 314
Gulfstream, II/III/IV 169
Guppy 382
GY-80 Horizon 403

Page

H

H-2 Seasprite 555
H-23 Raven 534
H-46 Sea Knight/Model 107 601
HA-31 Basant 467
HAL,
  HA-31 Basant 467
  HPT-32 Deepak 415
  HT-2 455
  Kiran 255
'Halo' 593
HAMC, SH-5 (PS-5) 516
Hansa 200
Harbin, Yun-12 359
'Harke' 594
Harrier 98
Harrier GR5 100
Hatsutaka 85
'Havoc' 587
Hawk 100 112
Hawk 200 114
Hawkeye 372
'Haze' 582
Helio,
  AU-24A Stallion 492
  Super Courier/Trigear Courier 491
'Helix' 597
'Helix B' 598
Hercules 383
Heron 607
HFB 320 Hansa 200
HH-3F Pelican 579
'Hind' 583
'Hip' 581
'Hokum' 585
'Hoodlum A' 599
'Hook' 592

Page
‘Hoplite’ 568
Horizon 403
‘Hormone’ 596
Hornet 269
HPT-32 415
HR 100 409
HR 200 434
HT-2 455
HU-16 Albatross 511
HueyCobra 564
Hughes/Schweizer, Model 269/300/300C/TH-55A Osage 567
Hunter 116

I

I-22 Iryd 264
IA 50 Guarani 278
IA 58 Pucara 330
IA 63 Pampa 263
IAI,
  101/102/201 Arava 526
  1125 Astra 191
  Kfir 217
  Westwind 209
IAR-93 102
IAR-99 Şoim 602
IAR-822/IAR-826/IAR-827 462
IAv Craiova IAR-93 102
ICA-Brasov, IAR-822/IAR-826/IAR-827 462
IDS 232
Il-14 ‘Crate’ 282
Il-18/Il-20 ‘Coot’ 375
Il-28 ‘Beagle’ 273
Il-38 ‘May’ 376
Il-62 ‘Classic’ 182
Il-76 ‘Candid’ 159

Page
Il-76 ‘Mainstay’ 160
Il-86 ‘Camber’ 152
Il-96-300 153
Il-114 318
Ilyushin,
  Il-14 ‘Crate’ 282
  Il-18/Il-20 ‘Coot’ 375
  Il-28 ‘Beagle’ 273
  Il-38 ‘May’ 376
  Il-62 ‘Classic’ 182
  Il-76 ‘Candid’ 159
  Il-76 ‘Mainstay’ 160
  Il-86 ‘Camber’ 152
  Il-96-300 153
  Il-114 318
Intruder 109
Ipanema 464
Iroquois 544, 546
Iryd 264
Iskra 253
Islander/Defender 360

J

J/1 Autocraft 611
J-8 II ‘Finback’ 229
J-22 Orao 102
Jaguar 94
JAS 39 Gripen 220
Jastreb 254
JetRanger 548
Jet Squalus 256
JetStar 197
Jetstream 31 313
Jetstream 41 314
Jodel,
  D.11/D.112/D.117 458

Page
  D.140 Mousquetaire/Abeille/D.150 Mascaret 460
  DR.1050/DR.1051 Ambassadeur/Sicile 459
Jungmann/Jungmeister 521

K

K-8 260
Ka-25 ‘Hormone’ 596
Ka-26 ‘Hoodlum A’ 599
Ka-27 ‘Helix’ 597
Ka-29TB ‘Helix B’ 598
Ka-50 ‘Hokum’ 585
Kaman, H-2 Seasprite 555
Kamov,
  Ka-25 ‘Hormone’ 596
  Ka-26 ‘Hoodlum A’ 599
  Ka-27 ‘Helix’ 597
  Ka-29TB ‘Helix B’ 598
  Ka-50 ‘Hokum’ 585
Kawasaki,
  C-1A 130
  T-4 111
Kawasaki/Lockheed, P-2 Neptune 286
KC-135 150
Kfir 217
King Air 301
Kiowa 548
Kiran 255
KM-2B 400
Kruk 472
Kudu 493

L

L-29 Delfin ‘Maya’ 249
L-39 Albatros 265

Page

L-40 Meta-Sokol 389
L-42 Regente 494
L-70 Vinka/Miltrainer 445
L-90 Redigo 413
L-188 Electra 377
L-200 Morava 332
L-410 Turbolet 336
L-610 356
L-1011 TriStar 143
Lake, LA4 Buccaneer/LA-250 Renegade 506
Lance I/Lance II/Turbo Lance II 423
Laverda, Super Falco F8L 393
Learjet,
  23/24/25 206
  28/55 208
  35/36 207
Let,
  L-200 Morava 332
  L-410 Turbolet 336
  L-610 356
Lockheed,
  C-5 Galaxy 162
  C-130 Hercules 383
  C-141B Starlifter 158
  F-104 Starfighter 268
  F-117A 244
  JetStar 197
  L-188 Electra 377
  L-1011 TriStar 143
  P-3 Orion 378
  S-3A/-3B 'Viking' 129
  T-33A Shooting Star 252
  U-2/TR-1 275
Lockheed/General Dynamics/Boeing, F-22 604
LongRanger 552
Lovaux, Optica Scout 530
LTV, A-7 Corsair II 105
Lunar Rocket 479

Page

Lynx 430, 551

M

M-4 Rocket/M-5 Lunar Rocket 479
M-15 Belphegor 531
M-18 Dromader 470
MA-1B Diablo 1200 522
Magister 271
Mail 513
'Mainstay' 160
Malibu 422
Mangusta 565
Martin 4-0-4 281
Mascaret 460
Maule, M-4 Rocket/M-5 Lunar Rocket 479
Max 418
Max Holste, Broussard 487
'May' 376
'Maya' 249
MB-326 258
MB-339A 259
MBB,
  BO 105 557
  BO 108 550
  HFB 320 Hansa 200
MBB-Kawasaki, BK 117 549
McDonnell Douglas,
  A-4 Skyhawk 225
  AH-64A Apache 586
  AV-8B 100
  C-17A 161
  DC-8 147
  DC-8 Super 60/Super 70 148
  DC-9 175
  DC-10 144
  F-4 Phantom II 93

Page

  F-15 Eagle 119
  MD-11 145
  MD-80 176
  MD520N/530N 605
  Model 500 556
McDonnell Douglas/BAe, T-45A Goshawk 113
McDonnell Douglas/Northrop, F/A-18A Hornet 269
McKinnon,
  G-21 Turbo-Goose 509
  Super Widgeon 510
MD-11 145
MD-80 176
MD520N/530N 605
Mentor 399
Merchantman 609
Merlin 580
Merlin III 311
Mescalero 496
Meta-Sokol 389
Metro 277
Metropolitan 279
Mi-2 'Hoplite' 568
Mi-6 'Hook' 592
Mi-8/Mi-17 'Hip' 581
Mi-10/Mi-10K 'Harke' 594
Mi-14 'Haze' 582
Mi-24 'Hind' 583
Mi-26 'Halo' 593
Mi-28 'Havoc' 587
'Midget' 88
MiG-15UTI 'Midget' 88
MiG-17 'Fresco' 89
MiG-19 'Farmer' 90
MiG-21 'Fishbed' 230
MiG-23S 'Flogger B'/'E'/'G'/'K' 236
MiG-25 'Foxbat' 120
MiG-27 'Flogger D' 237
MiG-29 'Fulcrum' 122

Page
MiG-31 'Foxhound' 121
Mikoyan,
  MiG-19 'Farmer' 90
  MiG-21 'Fishbed' 230
  MiG-23S 'Flogger B'/'E'/'G'/'K' 236
  MiG-25 'Foxbat' 120
  MiG-27 'Flogger D' 237
  MiG-29 'Fulcrum' 122
  MiG-31 'Foxhound' 121
Mikoyan-Gurevich,
  MiG-15UTI 'Midget' 88
  MiG-17 'Fresco' 89
Mil,
  Mi-2 'Hoplite' 568
  Mi-6 'Hook' 592
  Mi-8/Mi-17 'Hip' 581
  Mi-10/Mi-10K 'Harke' 594
  Mi-14 'Haze' 582
  Mi-24 'Hind' 583
  Mi-26 'Halo' 593
  Mi-28 'Havoc' 587
Miltrainer 445
Mirage 5/50 214
Mirage 2000 215
Mirage F1 96
Mirage III 213
Mirage IVA/IVP 216
Mitsubishi,
  MU-2 335
  T-2/F-1 95
Model 2T-1A-2 519
Model 25 SkyRocket II 417
Model 47 535
Model 107 601
Model 150/152 Aerobat 497
Model 172 Skyhawk/T-41 Mescalero 496
Model 180/Model 185 Skywagon 480
Model 182 Skylane/Rocket 498

Page
Model 204/UH-1 Iroquois 544
Model 205/UH-1 Iroquois/Model 205A-1 546
Model 206 JetRanger/OH-58 Kiowa 548
Model 206L LongRanger 552
Model 210/Centurion 503
Model 212/Model 212ASW 545
Model 214A/214B/214ST 547
Model 222 554
Model 269/300/300C/TH-55A Osage 567
Model 280 562
Model 337 Skymaster/0-2 525
Model 360/H-23 Raven 534
Model 400 Beechjet/Diamond 189
Model 500 556
Model V35B 406
Mohawk 287
Mooney, Ranger 402
'Moose' 418
Morane-Saulnier, MS-760 Paris 248
Morava 332
'Moss' 167
Mousquetaire 460
MR-2 125
MS-760 Paris 248
MU-2 335
Mudry, CAP 10/CAP 20/CAP 21 456
Mystére-Falcon 10/100 190
Mystére-Falcon 20/200 192
Mystére-Falcon 900 194
Mystére-Falcon 2000 195

N

N-5A 465
N 262/Frégate 341
N621 Universal 391
NAMC, YS-11A 317

Page
NAMC/PAK, K-8 260
Nanchang,
  N-5A 465
  Q-5 Fantan 92
Navajo 289
Navion, Rangemaster 394
Neiva,
  L-42 Regente 494
  N621 Universal 391
Neptune 286
NH90 605
Nimrod MR2 125
Nomad 365
Nord, Noratlas 527
North American,
  T-6 Texan 419
  T-28 Trojan 421
Northrop,
  B-2 245
  F-5 267
  T-38A Talon 266

O

O-1 Bird Dog 482
O-2 525
OH-58 Kiowa 548
One-Eleven 172
Orao 102
Orion 378
Osage 567
Oscar 495
Osprey 604
Otter 486
OV-1/RV-1 Mohawk 287
OV-10 Bronco 529

Page

P

P-2 Neptune 286
P-3 378
P-3 Orion 392
P.64 Oscar/P.86 Oscar/P.66C-160 Charlie 495
P68 Victor 362
P.166 338
P.180 Avanti 337
PA-18 Super Cub 476
PA-23 Apache 290
PA-23 Aztec 291
PA-28/PA-32 Cherokee
PA-28R-200 Arrow 408
PA-30/PA-39 Twin Comanche 294
PA-31 Navajo 289
PA-31-350 Chieftain 304
PA-31T Cheyenne II/PA-31T2 Cheyenne II XL 309
PA-32 Cherokee 438
PA-32-301 Saratoga 439
PA-34 Seneca 295
PA-38-112 Tomahawk 453
PA-42 Cheyenne III/IIIA/400 325
PA-44 Seminole 323
PA-46-310P Malibu 422
PAC Fletcher, FU-24/Cresco 450
Pacific Aerospace Corporation, Airtrainer CT4 431
Pampa 263
Panavia,
  Tornado ADV 233
  Tornado IDS 232
Panther 542
Paris 248
Partenavia,
  P.64 Oscar/P.86 Oscar/P.66C-160 Charlie 495
  P68 Victor 362
Pawnee/Pawnee Brave/Brave 463
PC-6 Porter 489

Page

PC-7 Turbo-Trainer 397
PC-9 398
PC-12 424
PD-808 205
Pelican 579
Phantom II 93
Piaggio,
  P.166 338
  P.180 Avanti 337
  PD-808 205
Piel/Scintex, CP 301 Emeraude 457
Pilatus,
  P-3 392
  PC-7 Turbo-Trainer 397
  PC-9 398
  PC-12 424
Pilatus Britten-Norman,
  Islander/Defender 360
  Trislander 361
Pilatus/Fairchild, PC-6 Porter 489
Pillán 414
Piper,
  Aerostar 297
  Arrow IV/Turbo Arrow IV 425
  Lance I/Lance II/Turbo Lance II 423
  PA-18 Super Cub 476
  PA-23 Apache 290
  PA-23 Aztec 291
  PA-28/PA-32 Cherokee 438
  PA-28R-200 Arrow 408
  PA-30/PA-39 Twin Comanche 294
  PA-31 Navajo 289
  PA-31-350 Chieftain 304
  PA-31T Cheyenne II/PA-31T2 Cheyenne II XL 309
  PA-32-301 Saratoga 439
  PA-34 Seneca 295
  PA-38-112 Tomahawk 453
  PA-42 Cheyenne III/IIIA/400 325

Page

  PA-44 Seminole 323
  PA-46-310P Malibu 422
  Pawnee/Pawnee Brave/Brave 463
  T-1040 312
Pitts, S-1/S-2 Special 520
PL-1B Chiensou 433
PL-12/T-320 Airtruk/Skyfarmer 532
Porter 489
Privrednik 469
Promavia, Jet Squalus 256
Provider 351
Prowler 109
PS-1/US-1 514
PS-5 (SH-5) 516
Pucara 330
Puma 572
Pup 448
PZL-101A Gawron 488
PZL-104 Wilga 490
PZL-106 Kruk 472
PZL, I-22 Iryd 264
PZL-Mielec, M-15 Belphegor 531
PZL Mielec (Antonov), An-28 'Cash' 368
PZL-Warszawa,
  PZL-104 Wilga 490
  PZL-106 Kruk 472

Q

Q-5 Fantan 92
Quail 468
Queen Air/Seminole 300

Page

R

R22 Alpha 536
R 3000 452
Rafale 221
RAH-66 Commanche 606
Rallye 449
Rangemaster 394
Ranger 402
Raven 534
Redigo 413
Regente 494
Regional Jet 199
Renegade 506
RF-6B/RFB RS 180 Sportsman 442
RFB, Fantrainer 250
RH-1100 559
Robin,
  DR 221 Dauphin 436
  DR 400 435
  HR 100 409
  HR 200 434
  R 3000 452
Robinson, R22 Alpha 536
Rocket 479, 498
Rockwell,
  Commander 122/114 410
  OV-10 Bronco 529
Rockwell International,
  B-1B 240
  T-2 Buckeye 272
Rogerson, RH-1100 559
Rogerson Hiller, UH-12/Model 360/H-23 Raven 534
RV-1 Mohawk 287

Page

S

S-1/S-2 Special 520
S-2 Tracker/C-1 Trader 342
S-3A/-3B 'Viking' 129
S/11 203
S-58/S-58T 570
S-61L/S-61N 575
S-61R/CH-3E/HH-3F Pelican 579
S-62 576
S-64 Skycrane/CH-54 Tarhe 595
S-65A/CH-53 Sea Stallion 590
S-70B/SH-60B Seahawk 589
S-70/UH-60A Black Hawk 588
S-76 584
S-80/CH-53E Super Stallion 591
S.205/S.208 401
S.211 110
S312 Tucano 395
SA.341/342 Gazelle 539
SA.360 and SA.361H Dauphin 540
SA.365 Dauphin 2 541
Saab,
  105 118
  340A 320
  2000 321
  Draken 224
  JAS 39 Gripen 220
  Safari/Supporter 504
  Safir 390
  Viggen 219
Sabre 608
Sabreliner 187
SAC, J-8 II 'Finback' 229
Safari/Supporter 504
Safir 390
Saratoga 439

Page

Schweizer,
  Super Ag-Cat 523
Scout 543
Scout/Decathlon 478
Scout/Wasp 543
Sea Harrier 99
Sea King/Commando 578
Sea Knight 601
Sea Stallion 590
Seahawk 589
Seasprite 555
Seastar CD2 507
Seminole 300, 323
Seneca 295
Sentry 151
SEPECAT, Jaguar 94
Series 800 185
SF.260 412
SH-3/SH-61 577
SH-4 563
SH-5 (PS-5) 516
SH-60B Seahawk 589
Sherpa 370
Shin Meiwa, PS-1/US-1 514
Shooting Star 252
Shorts,
  330/Sherpa/C-23A 370
  360 371
  Belfast 610
  S312 Tucano 395
  Skyvan 369
Shorts S312 Tucano/EMBRAER EMB-312 (T-27) 395
SIAI-Marchetti,
  S.205/S.208 401
  S.211 110
  SF.260 412
  SM.1019E 483
Sicile 459

Page

Sierra 200 416
Sikorsky,
  S-58/S-58T 570
  S-61R/CH-3E/HH-3F Pelican 579
  S-62 576
  S-64 Skycrane/CH-54 Tarhe 595
  S-65A/CH-53 Sea Stallion 590
  S-70B/SH-60B Seahawk 589
  S-70/UH-60A Black Hawk 588
  S-76 584
  S-80/CH-53E Super Stallion 591
  SH-3/SH-61 577
  SH-60B Seahawk 589
Silvercraft, SH-4 563
SJ30 188
Skipper 451
Skycrane 595
Skyfarmer 532
Skyhawk 225, 496
Skylane/Rocket 498
Skymaster 379, 525
SkyRocket II 417
Skyservant 364
Skyvan 369
Skywagon 480
Skywarrior 132
Slingsby, T67M Firefly 160/T67M200 Firefly 441
SM.1019E 483
SN601 Corvette 196
Socata,
  Rallye 449
  TB 9 Tampico/TB 10 Tobago 437
  TB 30 Epsilon 396
Şoim 602
SOKO,
  G-2 Galeb/Jastreb 254
  G-4 Super Galeb 115
  J-22 Orao/IAv Craivoa, IAR-93 102

Page

Sport 150 428
Sportsman 442
Sports Trainer Model 2T-1A-2 519
Stallion 492
Stampe, SV.4 518
Starfighter 268
Starlifter 158
Starship 1 339
Stationair 6 500
Stationair 7/Stationair 8 501
Stratofortress 157
Strikemaster 257
Su-7 'Fitter A' 91
Su-15 'Flagon' 228
Su-17 'Fitter C' 238
Su-24 'Fencer' 239
Su-25 'Frogfoot' 270
Su-27 'Flanker B' 123
Sukhoi,
  Su-7 'Fitter A' 91
  Su-15 'Flagon' 228
  Su-17 'Fitter C' 238
  Su-24 'Fencer' 239
  Su-25 'Frogfoot' 270
  Su-27 'Flanker B' 123
Sundowner 180/Sport 150 428
Super 60/Super 70 148
Super Ag-Cat 523
Super Courier/Trigear Courier 491
Super Cub 476
Super Etendard 107
Super Falco F8L 393
Super Frelon 574
Super Galeb 115
Super IV/CD.43 Guepard 411
Super King Air 200 326
Super Puma/AS 532 Cougar 573
Super Stallion 591

Page

Super VC10 181
Super Widgeon 510
Supporter 504
SV.4 518
Swearingen SJ30 188

T

T1 Hatsutaka 85
T-2 Buckeye 272
T-2/F-1 95
T-4 111
T-6 Texan 419
T-27 Tucano 395
T-28 Trojan 421
T-33A Shooting Star 252
T-34 Mentor/T-34C 399
T-35 Pillán 414
T-38A Talon 266
T-41 Mescalero 496
T-45A Goshawk 113
T67M Firefly 160/T67M200 Firefly 441
T303 Crusader 298
T-320 Airtruk/Skyfarmer 532
T-1040 312
T-Cat 430
T-CH-1 420
Talon 266
Tampico 437
Tarhe 595
TB 9 Tampico/TB 10 Tobago 437
TB 30 Epsilon 396
Teal, TSC-1 Teal 508
Texan 419
TH-55A Osage 567
Thrush/Turbo Thrush 473
Thunderbolt II 211

Page

Tiger 566
Tiger Moth 517
Titan 305
Tobago 437
Tomahawk 453
Tomcat 234
Tornado ADV 233
Tornado IDS 232
TR-1 275
Tracker 342
Trader 342
Transall 353
Transavia, PL-12/T-320 Airtruk/Skyfarmer 532
Transporter 349
Transporter Allianz, C-160 Transall 353
Trident 606
Trigear Courier 491
Trislander 361
TriStar 143
Trojan 421
TS-11 Iskra 253
TSC-1 Teal 508
Tu-16 'Badger' 127
Tu-22 'Blinder' 177
Tu-22M 'Backfire' 241
Tu-28P 'Fiddler' 108
Tu-95/Tu-142 'Bear' 166
Tu-126 'Moss' 167
Tu-134 'Crusty' 178
Tu-154 'Careless' 179
Tu-160 'Blackjack' 242
Tu-204 137
Tucano 395
Tupolev,
  Tu-16 'Badger' 127
  Tu-22 'Blinder' 177
  Tu-22M 'Backfire' 241
  Tu-28P 'Fiddler' 108
  Tu-95/Tu-142 'Bear' 166
  Tu-126 'Moss' 167
  Tu-134 'Crusty' 178
  Tu-154 'Careless' 179
  Tu-160 'Blackjack' 242
  Tu-204 137
Turbo Arrow IV 425
Turbo-Goose 509
Turbo Lance II 423
Turbolet 336
Turbo Thrush 473
Turbo-Trainer 397
Tutor 247
Twin Comanche 294
Twin Otter 366
TwinStar/Fennec 558

U

U-2/TR-1 275
UH-1 Iroquois 544, 546
UH-12/Model 360/H-23 Raven 534
UH-60A Black Hawk 588
Uirapuru 446
Universal 391
US-1 514
UTVA,
  UTVA-60/UTVA-66 481
  UTVA-65 Privrednik 469
  UTVA-75A 432

V

V-22 Osprey 604
V35B 406
Valmet,
  L-70 Vinka/Miltrainer 445
  L-90 Redigo 413
VC10/Super VC10 181
VFW 614 608
Vickers, Viscount 374
Victor 126, 362
Viggen 218
'Viking' 129
Viking 404
Vinka 445
Viscount 374
Vought, F-8 Crusader 104

W

WA-40/Super IV/CE.43 Guepard 411
Wasp 543
Wassmer, WA-40/Super IV/CE.43 Guepard 411
Wessex 571
Westland,
  Lynx 551
  Scout/Wasp 543
  Sea King/Commando 578
  Wessex 571
Westwind 209
Wilga 490
WSK-Okecie, PZL-101A Gawron 488
WSK-PZL-Mielec,
  M-18-Dromader 470
  TS-11 Iskra 253

X

Xingu 329

	Page
Y	
Yak-18 Max/Yak-18P 'Moose'	418
Yak-28 'Brewer'	131
Yak-38 'Forger' ('Forger A')	97
Yak-40 'Codling'	210
Yak-42 'Clobber'	183
Yakovlev,	
Yak-18 Max/Yak-18P 'Moose'	418
Yak-28 'Brewer'	131
Yak-38 'Forger' ('Forger A')	97
Yak-40 'Codling'	210
Yak-42 'Clobber'	183
YS-11A	317
Yun-12	359
Z	
Z-37 Cmelak	474
Z 50L/Z 50LS	461
Zlin,	
42/43/142	447
526/726	388
Z-37 Cmelak	474
Z 50L/Z 50LS	461

Test answers (see page 615)

1 MiG-29 'Fulcrum'
2 Beech Starship
3 An-225 'Cossack'
4 TriStar K1 Tanker
5 C-130 Hercules
6 F-15 Eagle
7 MBB BO 105
8 Bandeirante
9 BAe 146
10 Kamov Ka-50 'Hokum'
11 Jaguar
12 Su-27 'Flanker'
13 F-117
14 A-40 Albatross
15 F-16
16 B-2
17 Super Etendard
18 Tu-160 Blackjack
19 Tucano T1
20 EH 101 Merlin
21 MD-11
22 TAV-8B
23 Rafale C01
24 Cessna Citation II
25 T-45 Goshawk
26 Il-76 Candid
27 BAe Hawk T1
28 C-17
29 Epsilon
30 YF-22
31 L-39 Albatros
32 P.180 Avanti
33 Boeing 737-500
34 MiG-25 'Foxbat E'
35 VC10 Tanker
36 A-10A
37 G222
38 Bulldog
39 Challenger 601
40 AMX
41 L-90 Redigo
42 G-4 Super Galeb
43 Boeing 757 (front), Boeing 767 (rear)
44 Mystére-Falcon 20F
45 MB339C

Jane's World Aircraft Recognition Handbook provides rapid reference to more than 500 types of aircraft and helicopters flying in the world today.

Each of the main entries consists of a three-view silhouette, photograph and brief descriptive text, including dimensions. In addition, there are sections on the basics of recognition, teaching the subject, aircraft and weapon designation systems, [illegible] aircraft registrations, a glossary of recognition terms and sillograph training aids.

This edition contains approximately 40 new entries, including [illegible] silhouettes. In excess of 60% of all entries have been updated, and there are numerous new and revised silhouettes and sillographs.

CODE
£ 1-99
DATE 23/9
age UK

ISBN 0-7106-1042-4
9 780710 610423

ISBN: 0 7106 1042 4